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VOL. II.—5TH YEAR. SYDNEY: SATURDAY, NOVEMBER 16, 1918. No. 20.

EMERGENCY SURGERY.

Notes on 166 Consecutive "Immediate" Operations Performed at the Melbourne Hospital.

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For some time past it has been my practice personally to record the notes of all cases at the Melbourne Hospital to which I have been called to perform immediate operation.

It was with the feeling that a good deal might be learned from their perusal had I the notes more nearly at hand that this work was first commenced. On reviewing the cases, it occurred to me that a few notes upon the surgical conditions met with might be of interest to others, as showing the nature and field of operative surgery presented in their treatment.

With a few exceptions all the patients were operated upon late in the evening or in the early morning hours. The majority of the patients were acutely ill, some were *in extremis*, whilst not a few were "accident cases." In a moderate proportion immediate operative interference was required for the prevention of more urgent symptoms and complications, and the prognosis in the worst cases was from the outset most unfavourable. The cases were usually seen for the first time upon the operating table or in the anæsthetic room, where a confirmation of the diagnosis given was not always practicable. One had often presented in a patient a condition in which a judgement was required in regard to:—

(*i.*) the diagnosis of the condition present,
(*ii.*) the advisability of operating immediately,
(*iii.*) a conservative as against a more radical operative interference, and
(*iv.*) the nature and position of incision (abdominal section).

I.—Diagnosis.

In referring to the diagnosis of the patient's condition, a word of praise is due to the members of the resident staff of the hospital for the accuracy presented in this respect. The difficulties encountered in arriving at a diagnosis in these cases can readily be gauged when one considers the circumstances under which many of the cases were admitted to the hospital. These emergency cases were often brought in from the streets by the police, or a kindly neighbour found the patient extremely ill, requiring medical attention. Often no history could be given as to the illness or accident, and the patient was both too ill to relate the often necessary sequence of events, and too ill to be overburdened by clinical examination.

So pre-eminent to the patient's mind was the present illness that the earlier symptoms of its onset were overshadowed and the true nature of the malady was not revealed to the surgeon. Other patients were sent in by a local medical man, with or without a diagnosis, the correctness of which depending on the practitioner concerned and the conditions under which the patient was first seen. The condition of the patient may have been influenced by the journey or by the exhibition of morphine, thus increasing or diminishing, as the case may be, the apparent need for urgency in treatment. Occasionally, a patient would walk in to the casualty or out-patient department and only learn on being examined that he was suffering from an acute condition requiring immediate operation. Several cases of acute appendicitis and one of perforating duodenal ulcer came within this class. In moribund cases the clinical signs of the primary condition were lost, as in the late stages of general peritonitis, so that it was often impossible to recognize the condition as resulting, for example, from appendicitis, perforation of a viscus, or intestinal obstruction. Indeed, these cases, with subnormal temperature and lax abdominal wall, in the absence of data accumulated by the aid of clinical methods of examination, simulated such purely medical conditions as hepatic cirrhosis, cardiac failure or uræmia, etc.

On the other hand, some purely medical conditions may be diagnosed as surgical. Cases of pneumonia have been known to be operated upon, especially in children, under the mistaken diagnosis of an acute abdominal surgical condition, and the same may be said of typhoid fever, and even of acute ulcerative endocarditis with toxic jaundice. In this series a case of uræmia was operated upon as one of "intestinal obstruction," but the error was not repeated in a second case presented to me with a similar diagnosis, whilst a case of "mumps" with metastatic ovaritis simulated very closely "acute appendicitis."

II.—Immediate Operation.

The main issue often to be solved on being called to a case was whether the condition was to be regarded as one for "immediate" operation, or whether it was safe to leave over night. Usually there was no doubt in this connexion, but occasionally after injuries, and particularly in some abdominal conditions, the question had to be considered. Given a correct diagnosis, the advisability of performing "immediate" operation rested upon two points:—

(*a*) Was the patient ill enough to require immediate operation?
(*b*) Was the patient too ill to warrant immediate operation?

In the first place, once it was recognized that a surgical condition was present requiring operation, it was found that the patient was the better for early intervention, provided that this did not mean less care in the preparation or undue haste in the performance. Acute salpingitis is usually regarded as calling for a waiting policy, thereby allowing acute processes to subside and the risk of infection to diminish. The differential diagnosis of this condition from acute appendicitis in a great many cases is, however, extremely uncertain. On the other hand, I regard a patient with acute appendicitis, accurately diagnosed, as an

ways ill enough to warrant immediate operation. My experience of emergency appendical cases at the Melbourne Hospital has convinced me of this. It is impossible to predict that a few hours' waiting will not do harm. I have operated upon quite a number of persons in whom the pulse and temperature have been normal, the tenderness and local rigidity slight and the onset only a few hours, and yet at immediate operation I found an acutely distended pus-appendix. It is well known that an acute appendicitis case left over night has been converted into a perforated one by morning. It is because of early operation that the operative mortality in these cases is so low. It will be noted that the fatal cases belong to those in which perforation or gangrene has occurred.

Again, in suspected intra-abdominal hæmorrhage more lives will be saved than lost by immediate operation; for colour, pulse-rate and localizing signs are not always to be relied upon as evidence of the degree of illness of the patient, as was seen in a case of ruptured liver in this series.

In the second place, one may be called to a case say that of an accident, and find the patient in such a condition from shock and injuries received that immediate operation would only court death. With the exhibition of saline solution during the interval of waiting the patient's condition may so improve as to remove the need for operation, or, at least, warrant its performance with some degree of hope of a successful issue. In acute abdominal crises saline solution, given either before or during the operation, has proved to be of immense value. Hæmorrhage should be controlled either prior to or during operation, before the saline solution is administered. Again, a case may bear so unfavourable an outlook that operation may be refused immediately, more from the anæsthetic point of view, perhaps, than from the fact that the operation could neither relieve nor remedy the condition. One found acute intestinal obstruction the chief cases to be considered here. Most of the deaths in this series belonged to this class. Malignancy and umbilical and femoral herniæ were the commonest causes. The great age of the patients (average 63 years), taken with the fact that there had often been many days of toxic absorption from the bowel and vomiting, rendered the prognosis precarious. They were notoriously bad subjects for anæsthesia, and were among the most difficult to handle surgically. The malignant cases held out only temporary relief, whilst permanent cure at a later date could not often be hoped for. In spite of all this, one could not but make an effort to relieve some of these patients.

The recognition of the fact that only by controlling hæmorrhage could life be saved, led one to operate upon a case of ruptured liver *in extremis*. The patient died during the abdominal section, yet it would have been hard to have looked on, knowing that he was bleeding to death, although, had one been able to diagnose that the liver was completely torn in two, operation would not have been attempted.

Quite a number of cases were refused operation under this heading. Such cases are not included in the series, because no operation was performed.

A patient on whom a large partial gastrectomy with gastro-enterostomy had been performed some eighteen months previously for carcinoma, was refused operation. He was extremely emaciated, and presented acute symptoms and signs of perforation of a viscus. In addition to generalized board-like rigidity and tenderness of the abdomen, there was some distension and evidence of peristalsis. He lived for three days after refusal of operation, and the autopsy disclosed recurrence in the stomach stump, with perforation and infiltration of the surrounding structures. A secondary nodule in the caecal region was causing the intestinal obstruction. In another case, an enlarging, huge extravasation in the shoulder, neck and thoracic regions, following traumatic rupture of the subclavian or axillary artery, caused the death of the patient whilst being conveyed to the operating theatre. An elderly man with an advanced general peritonitis following perforation of a duodenal ulcer was in an extremely toxic state. Operation was refused, as it was seen that he was not a fit subject for an anæsthetic or an operation. He died within a few minutes of this decision. Such a case presents the medical aspect, as already pointed out.

In head injuries, in the absence of any history of the accident, when the condition was very urgent, it was hard to leave unopened a middle meningeal hæmorrhage, under the belief that it was a case of fracture of base of the skull or ventricular hæmorrhage. Operation was refused in a case admitted with the diagnosis of alcoholic coma and fractured leg. This patient was examined particularly in regard to the possible presence of a middle meningeal hæmorrhage. There was no history and no signs of injury on the head. There were no localizing signs at all to indicate which side of the skull might be explored. The presence of alcoholism did not detract from the examination. There was found at death an advanced cerebral compression from hæmorrhage from this artery. The risk involved by giving an anæsthetic was a material factor in considering the advisability of operating in these emergency cases, and this was particularly seen in acute intestinal obstruction. This was, in the majority of the cases, in patients of advanced age and exhausted by malignant growths or prolonged toxæmia. Though rectal ether anæsthesia might have proved of value to a number of the patients, it was not generally practicable, on account of the urgency of the condition.

In the worst cases, ether by the open method alone was administered. One case of strangulated inguinal hernia was operated on under local anæsthesia, very slight pain being felt only at the moment of severing the sac after ligation at its neck.

Several deaths were attributable to pneumonia; the patients without exception took the anæsthetic very badly. Open ethyl chloride induction, followed by open ether, was the routine anæsthetic. A few patients were anæsthetized by a mixture of ether and chloroform, whilst one received chloroform alone.

III.—Conservative as Against Radical Surgery.

One should always aim at conserving the human body as far as possible. No operation should be performed that could be avoided in the interests of the patient's well-being and comfort. When operation is performed, due regard should be paid to anatomical

structures, particularly muscle and nerves. Incisions should be planned accordingly, and should be as small and as few as are consistent with good exposure and rapid working. It should be remembered that muscles need as careful handling as does the peritoneum.

Given equal chances, considering risk and result, conservatism should be more often availed of. It is chiefly to be applied in the cases under discussion, *i.e.*, immediate operations, but its practice may be borne in mind in other fields of operative surgery. In mutilated limbs in accident cases more conservative amputations can be carried out than are sometimes done. The indications may at first appear to call for amputation, whereas closer investigation may show that a conservative operation is all that is required. A limb may be saved from amputation by conservative treatment; a larger and more useful portion of a limb may be left than by following classical amputations; a finger (or two) of a comminuted hand saved is more useful than artificial fingers supplied by the instrument maker; the saving of the elbow-joint allows for a more useful artificial limb than does an amputation above that joint; the big toe, just as the thumb, should be retained, but for different functions; interference with the architecture of the foot should be minimal; whilst the longer the stump of the leg and thigh the firmer will be the support for the artificial limb. Considering the importance of the abdominal musculature in connexion with the respiratory function, one should conserve the abdominal wall as far as possible. Laparotomy should not be undertaken lightly. Two incisions should not be used where one would suffice, and one which does least damage, whilst giving equal access, should be preferred.

IV.—Abdominal Section.

In the cases of this series the position of abdominal section naturally depended upon the diagnosis.

An absolute diagnosis was often not possible, and where there was a doubt, a good deal of judgement was required in its performance. Whether to open the abdomen above or below the umbilicus was not always easy to decide, especially in the acute abdominal crises, where no indication could be obtained as to the primary cause. Unless some fairly definite indication existed for the selection of the upper segment of the abdomen, the sub-umbilical incision was chosen.

A preliminary 2 cm. supra-pubic stab incision was found of great value in localizing the primary cause in an "acute abdomen."

Here the character of the fluid, the escape of gas and its odour would enable one to distinguish the position of the lesion. One could generally recognize gastric contents by their odour and appearance in perforation of stomach or duodenum; bile in perforated gall-bladder; pus with a fæcal odour in appendicitis; odourless pus (frequently) in salpingitis; turbid, fæcal-smelling fluid in perforation of the intestine; clear fluid in early cases of intestinal obstruction from malignant disease or adhesions; blood-stained fluid in late obstruction or pancreatitis; pure blood in ruptured ectopic gestation or rupture of a solid viscus.

This evidence, taken with any other helpful factors in the case, would determine the ultimate site of the incision, whilst the stab incision could be used for drainage, and closed as desired. It was always advisable to ensure that the bladder had been emptied previously. In intestinal obstruction the mid-line sub-umbilical incision was invariably used. In deciding between a muscle splitting or a mid-line incision in a female when the diagnosis lay between appendicitis or a pelvic condition, preference was given to the latter, since the patient was over eighteen years of age, the abdominal signs low down and pelvic history and examination suspicious, but not definite. If a patient were under eighteen years of age and the diagnosis of appendicitis was doubtful on account of the presence of pelvic symptoms, the muscle splitting McBurney incision was almost invariably found all that was necessary. In appendicitis the position of the muscle splitting incision was varied from high to low, from the middle line to the extreme lateral region, according to the evidence obtained as to the maximum point of tenderness, or the position of a mass or thickening ascertained just prior to or after anæsthetization. This would not, however, always obtain, as in quite a number of cases the maximum or only tenderness was in the epigastrium. In general peritonitis following appendicitis the mid-line incision afforded the best approach, as it often dispensed with the necessity of making a McBurney incision and as it provided for better drainage. It is only in the occasional high caecal cases. with a retro-caecal appendix, that this incision fails to give access to the appendix. One found the right rectus muscle splitting incision of great value in the cases where a differentiation between gall-bladder, duodenal or appendical lesion could not be accurately arrived at before operation. It could be made opposite the umbilicus, either a little above or a little below this level, according to which condition was suspected to exist. It would be of small dimension until the lesion was localized, whence it would be enlarged cranially or caudally, as desired. The upper part of the abdomen was usually opened through the right rectus muscle, unless the left side were definitely indicated, and the muscle was split with the fingers rather than cut with the scalpel, as the nerves and the muscle fibres were not damaged in this way. This incision gave more room and damaged the muscle less, than by retracting the muscle laterally. Retraction of the muscle medially is unsurgical.

The *linea alba* itself was not incised in any of these cases, but rather the rectus sheath immediately to one or other side of the median plane, as indicated.

Classification of Cases.

The cases met with in this series have been classified according to the following table in which the number in each class, along with the mortality, has been given. It is to be noted that only those cases that one was called to in emergency, and that demanded immediate operation, are included; and only the cases operated upon at once are being dealt with. "Carded" operations and cases seen in emergency where operation was refused, either from the fact that the case was considered not urgent or was inoperable, are not recorded. Patients who died during operation are included, whilst those that succumbed prior to commencement of operation are not.

If more than one operation was performed in a

given case, it is tabulated only under the heading for which the primary operation was necessary. No case was operated on immediately unless the signs and symptoms of the condition warranted urgency in the treatment.

The personal notes of these cases, together with the nature of the operation, were recorded in alphabetical order, and the table is compiled from these taken consecutively. In many instances hospital records have been consulted for certain details.

The great majority of the cases have been operated upon during the past twelve months, a personal record kept prior to two years ago being too incomplete to be of value.

Table of Cases.

Nature of Case.	Number of Cases. M.	F.	Total	Number of Deaths. M.	F.	Total
A.—Head Cases.						
Scalp wounds—						
With fracture	4	1	5	1	1	2
Without fracture	1	2	3	—	1	1
Bullet wounds	2	—	2	—	—	—
Cut throat	5	—	5	4	—	4
Total	12	3	15	5	2	7
B.—Limb Cases.						
Upper—						
Compound comminuted fractures	3	—	3	1	—	1
Gunshot wounds	1	—	1	—	—	—
Acute para-epiphysitis	—	1	1	—	—	—
Lower—						
Compound comminuted fractures	4	—	4	2	—	2
Acute para-epiphysitis	1	—	1	—	—	—
Penetrating wound of knee	1	—	1	—	—	—
Total	10	1	11	3	—	3
C.—Abdominal Cases.						
Stomach and Duodenum—						
Perforation of ulcer	6	—	6	2	—	2
Intestines—						
Acute obstruction from—						
Hernia—						
Inguinal	7	1	8	—	1	1
Femoral	1	2	3	1	2	3
Umbilical	—	3	3	—	3	3
Adhesions	—	3	3	—	—	—
Malignant growths	3	1	4	3	1	4
Rupture of intestines	3	—	3	2	—	2
Appendicitis and typhlitis	52	23	75	2	1	3
Diverticulosis of large bowel (sigmoiditis, etc.)	2	1	3	1	1	2
Peritoneum—						
Tuberculous peritonitis	2	—	2	—	—	—
Gall-bladder and Ducts—						
Cholelithiasis	2	5	7	1	2	3
Pancreas—						
Acute pancreatitis	1	2	3	?	1	1
Liver—						
Rupture by trauma	3	—	3	2	—	2
Spleen—						
Rupture by trauma	1	—	1	—	—	—
Kidney—						
Pyelitis with pregnancy	—	1	1	—	—	—
Uræmia	1	—	1	—	—	—
Pelvic Organs—						
Salpingitis	—	11	11	—	—	—
Ovarian cyst (twisted pedicle)	—	1	1	—	—	—
Ovaritis (mumps)	—	1	1	—	—	—
Fibroids uterus	—	1	1	—	—	—
Total	84	56	140	14	12	26
Total of all cases	106	60	166	22	14	36

A.—Head Cases.

Scalp injuries complicated by fracture of the skull included three cases with linear fractures situate in the frontal, temporal, and parietal regions respectively, all extending to the base.

The frontal case suggested from the clinical signs and history a depressed fracture, whilst the temporal and parietal cases rather pointed to middle meningeal hæmorrhage. All three patients were unconscious. In the first there were no localizing signs beyond some mental confusion, which, however, was present prior to the injury, whilst in the other two cases a diagnosis had to be made between fracture of the base of the skull, middle meningeal hæmorrhage and cerebral hæmorrhage. The temporal fracture was situated over the anterior branch of the middle meningeal artery, was inverted U-shaped, with one limb extending to the base. The hæmorrhage appeared to come from the base, and there was no extra-dural clot. The clinical signs suggested the presence of some old hemiplegic condition, further adding to the difficulty in diagnosis. In another case not recorded, showing the difficulty one experiences in diagnosis, a fractured base was complicated by total blindness, with equally dilated fixed pupils, resulting from a previous fracture of the base of the skull. The parietal case, in a female, was interesting. She was brought in by a neighbour, and had been unconscious for three days, with a complete flaccid condition of the limbs and equally dilated pupils and no signs of injury or history of onset. There was found at operation a large extra-dural hæmorrhage, almost filling the left side of the calvarium. Neither branch of the artery appeared reponsible for the clot, as the hæmorrhage came from the base. The patient died on the third day, and the post-mortem examination failed to disclose satisfactorily from whence the hæmorrhoge definitely came.

The other two cases were depressed fractures; one in the parietal region was small, with the bone driven in 2.5 cm. without tearing the *dura*; the other had two areas of depressed bone in the frontal region. By raising and leaving *in situ* in this case a large fragment at the external angular process which had been driven in, one was able to conserve the supra-orbital margin. Though unconscious for 10 days, the patient made an excellent recovery.

These patients were all trephined. Apart from the decompression operation, little could be done for fractures involving the base. All were due to marked violence, excepting the depressed fracture in the parietal region. This patient was hardly conscious of the injury, and had no signs beyond a small cut on the scalp. This case illustrates the importance of exploring carefully all scalp wounds. There were two deaths; both occurred in patients in whom the signs prior to operation pointed to middle meningeal hæmorrhage of long duration.

The scalp wounds without fracture were associated with concussion and cerebral irritation, and all were thoroughly explored. One patient, aged 70, died on the following day, apparently from the effects of shock and the anæsthetic.

The bullet wounds were both in cases of attempted suicide by shooting with a revolver. The frontal

region was chosen, but in both cases the bullet merely flattened itself against the bone without injuring it, and was easily removed.

The cut throat cases were all in males, and all suicidal in nature. The cut was in the usual position for such cases, *viz.*, between the thyroid and the hyoid cartilages. Two showed attempted cuts in the skin, and one several cuts in the thyroid cartilage itself. In three the bleeding was not great, whilst in the other two it was considerable and was accompanied by shock. The carotid vessels escaped in all, and the bleeding in the worst cases came from the facial vessels. In one case the cut extended into the larynx only, whilst it severed the submaxillary gland and facial artery, rendering the patient almost pulseless. In the four other cases the pharynx was opened up and in one the cut could be seen upon its dorsal wall. It is interesting to note that where the cut involves the pharyngeal walls, further tearing of the pharynx occurs in a caudal direction on each side of the cut. This is brought about by the forcible respiratory movements, induced by blocking of the laryngeal orifice by a skin flap, several muscles or blood clot dragging down the larynx from its severed connexions above. It is important to note this in connexion with the suturing of the pharynx, which should be commenced at the caudal ends of these vertical tears. All the wounds were drained. Preliminary tracheotomy was performed in four cases. The only man on whom tracheotomy was not performed lived. In spite of this, it is wisest to perform tracheotomy, especially if the pharynx is divided. It allows both the operator and the anæsthetist greater comfort and ease, and is of value should œdema of the glottis arise in the after-treatment. Sir Thomas Fitzgerald was probably the first to introduce in Australia preliminary tracheotomy in operations of a similar nature. The chief causes of death were shock and septic pneumonia. Of the four deaths, two were due to shock, one during operation and the other shortly afterwards. Both patients were very collapsed from shock and hæmorrhage, although saline solution was exhibited. One other died from septic pneumonia on the fourth day, whilst the remaining patient, after recovering from this, died suddenly on the twelfth day.

The man who lived, ultimately paid the supreme penalty for murder. A patient, saved some years ago and not included in this series, ended his life by hanging, whilst awaiting a similar penalty.

B.—Limb Cases.

Two fracture cases in the upper limb were due to dynamite explosions, the individual using his hand in an attempt to shield himself. In both the hand and wrist were blown into fragments, whilst in one, in addition, both bones of the forearm were comminuted, the tissues of the forearm burnt, and the right shoulder dislocated. This dislocation was unusual in that the head of the humerus rested on the dorsal surface of the scapula beyond the position of a sub-spinous dislocation. Enough skin of the forearm was retained to enable amputation to be performed just distal to the *m. biceps* insertion. The stump obtained was quite useful. In the other case, amputation through the wrist, conserving the distal radio-ulnar articulation, was preferred to amputation through the forearm. This patient, however, died from pneumonia. The third case was that of a lad whose hand was caught in a sausage machine. To enable the comminuted hand to be released, the machine accompanied the lad to the casualty room, where the hand was extracted under an anæsthetic.

In preference to amputation through the forearm, one was able to save from the mangled mass the dislocated and completely rotated thumb, sufficient skin belonging to the dorsum of the hand being retained to cover the wrist and ball of the thumb. Excellent movement was obtained, and the usefulness of this thumb exceeds that a complete artificial hand. The deficiency in the hand was supplied by the instrument maker. In demonstrating with a loaded shot gun how a playmate had lost his hand, a boy exploded the full charge into the palm of his own hand, shattering it most severely. The indications at first pointed to amputation at least through the wrist joint, but at operation it was decided to leave the little and ring fingers, with the corresponding portion of the hand and wrist, with the result that this is eminently preferable to an artificial hand.

Of the four cases of lower limb fractures, all were due to street accidents, and all were of the tibia and fibula. In one case of compound fracture of these bones with disruption of the muscles, a modified Farabœuf amputation at the site of election was performed. An artificial limb was effectively applied later. In a second case of similar nature, but with comminution of bones and without destruction of the muscles, amputation was not performed, the limb merely being cleaned up. The patient died from an associated abdominal lesion forty-eight hours later. A third patient, with extensive comminuted fractures of both bones at the knee-joint, was extremely collapsed from shock and hæmorrhage from the right limb. The effects of an old right hemiplegia had contributed to his being run over by a tram. A rapid circular amputation through the thigh under light anæsthesia and morphine was performed, but he did not live many hours after. A fourth case, in which the left foot was completely crushed and amputated by a train just above the ankle, merely required removal of the projecting tibia and fibula. The case was complicated by fractured ribs and a possible abdominal hæmorrhage. These associated concomitant injuries should be especially looked for in accident cases, particularly abdominal injury, as they may be easily overlooked in the presence of the more evident fracture. In the majority of accident cases the patients are severely shocked, and are better treated by saline solution, in the absence of hæmorrhage, until improvement in their condition warrants the necessary operative interference.

Two cases of acute osteo-myelitis (para-epiphysitis) were met with, both in persons of the age of fifteen years. The upper limb case was in a girl in whom an infection commenced in the right thumb, destroying the proximal phalanx. The day following the incision of this thumb she complained of pain in the left shoulder, which quickly became swollen, and three weeks later she came to hospital with a large, painful swelling beneath the deltoid muscle. She was very

ill; at the operation pus was liberated from along the anterior border of the muscle and bare bone was exposed. Ten days later her condition had improved; X-ray examination showed a well-formed involucrum around the proximal half of the shaft; the greater part of the latter was removed at this second operation. The joint was quite free. In the lower limb case in a boy the proximal end of the tibial diaphysis was affected, producing a large, painful swelling beneath the insertions of the medial hamstring muscles. Incising through this swelling on to the bone, the latter was excavated until the diaphysial side of the epiphysis was cleanly exposed, and only the cortex of the tibia on the lateral side remained. A good recovery resulted.

To obviate mistakes early pain and swelling in the neighbourhood of a joint, especially in children and adolescents, should always suggest the possibility of this condition. That it may not be one of primary periostitis should be remembered, as an acute osteomyelitis ultimately reveals itself in a secondary periostitis, the point of spread in these cases being generally found in a softened patch of bone adjoining the epiphyseal line. It is important to remove freely all the infected bone and the cortex forming the boundary of the cavity should be shelving rather than overhanging, if free drainage is to occur.

The penetrating wound of the knee-joint, produced by a stab from a pen-knife, ultimately led to a septic arthritis, despite the fact that the wound in the joint was operated on on admission to hospital. The tissues of the thigh were infected from the original wound and not involved by any spread from the joint. Nevertheless, many incisions were necessary before the limb healed, and the patient could get about with a stiff knee. Rest by splinting is essential in promoting earlier healing and lessened pain, and particularly in preventing deformity.

The application of a Thomas's knee splint will enable the patient to get about much earlier than is usual in these cases. A stiff knee is preferable to an artificial limb, and for this reason alone one should not be too eager to amputate, however bad the patient's condition may be. A second case of septic arthritis of the knee, not recorded, in which I was asked to amputate the limb, was successfully treated by means of many incisions, and a very good, though stiff, limb resulted, although the patient's condition had been extremely grave.

C.—Abdominal Cases.

Abdominal conditions comprised 80% of the cases operated upon, and included many that were in an extremely grave condition.

From their variety, the treatment necessarily required a knowledge of abdominal section and operative technique. It will be seen from the table that the conditions met with involved practically every organ in the abdomen, and they have been classified therefore under these headings.

(i.) Stomach and Duodenum.

Perforation of Gastro-Duodenal Ulcer.—There were six cases of perforation of an ulcer of the stomach and duodenum, all in males, three of them being men of stout and robust build, whilst three were of the thin and rather anæmic type. Thus, as Professor Sir Harry Allen has remarked, there were two types—the arterio-sclerotic and the nervous, possibly giving some indication as to the ætiological factor. The average age 48 was years, the youngest 36, the oldest 54. Symptoms of indigestion were present in three cases; they varied from slight to severe and were of less than a fortnight's duration, except in one case (two years).

Two patients rigorously denied any symptoms preceding the onset of the perforation (and this after careful investigation later), whilst in another case no history was recorded in the notes recorded.

The duration of the perforation ranged between four and twenty-four hours; in one about four and a half hours, in two six hours, in one eight hours, in one eighteen hours, and in one about twenty-four hours elapsed between the time of perforation and the time of operation. The two patients in whom perforation had existed longer than eight hours, were very ill, though one walked into the casualty room. Both had general peritonitis. In three the perforation seemed to follow immediately upon the stimulation of peristalsis by ingesta.

In two cases the diagnoses were intestinal obstruction and acute appendicitis. Vomiting was never a marked symptom. When it occurred, it was only with the onset of the perforation. Epigastric tenderness and rigidity extending down the right side of the abdomen were the most important signs. Diminution of the liver dulness and dulness in the flanks were not marked features, because of the early stage of perforation in four of the cases.

The stomach was found to be not distended. Distension suggested that this organ was not at fault. In size the perforations varied from 3 cm. to 2 cm. in diameter, whilst the size of the ulcer itself could not always be ascertained with any degree of accuracy, though it was not very large in any of the cases. All the perforations were within 2.5 cm. of the pyloric sphincter and were situated upon the ventro-cranial surface of the gut. The operations performed in the six cases, in the order in which they were met with, were:—

(1) Infolding of ulcer, posterior gastro-jejunostomy, with pelvic drainage.
(2) Infolding of ulcer, drainage of pelvis.
(3) Infolding of ulcer, omental graft, without drainage.
(4) Infolding of ulcer, without drainage.
(5) Infolding of ulcer, without drainage.
(6) Infolding of ulcer, without drainage.

Two patients (2 and 3) died, both from shock and peritonitis. In their cases the perforation had existed over eighteen hours, and they were extremely ill prior to operation. The second patient had a perforation in the pyloric canal larger than a threepenny-bit, and of not less than twenty-four hours' duration. Though extremely ill, he lived two days. The third patient, in whom an omental graft was used, was a chronic alcoholic, who walked into the casualty room on the day of admission desperately ill and was admitted. He died on the day following operation. Three patients did well with simple closure of the perforation and infolding of the ulcer without

drainage. Gastro-jejunostomy was performed in the first case, but it appeared to me that it was only indicated where obstruction at the pylorus was present or might result. Its performance adds considerably to the already shocked condition of the patient, and its effect upon the ulcer is of possibly dubious value. The necessity for drainage depends upon the amount and nature of the soiling of the peritoneum, but especially upon its duration, and may often with advantage be omitted.

Upon the same factors depends the immediate prognosis, and though this is influenced by the size of the perforation and the character of the gastric contents, it will be the better the sooner operation is performed after perforation. With the advent of general peritonitis the prognosis becomes extremely grave. With regard to the ultimate prognosis, it is difficult to give an opinion here. The patients who have reported from time to time, have been very well, but usually, after six months or more, they tire of this and are lost sight of.

(To be continued.)

ORAL ADMINISTRATION OF ETHER AS AN ADJUVANT TO "OPEN ETHER."

By **Glen H. Burnell, M.B., B.S. (Adelaide),**
Broken Hill Hospital.

In the *British Medical Journal* of March 2, 1918, J. T. Gwathmey published some preliminary notes on general analgesia for dressings and slight operations. At this Hospital a shortage of medical officers has led to the routine administration of anæsthetics by the nursing staff; this has resulted in the safest anæsthetic, *viz.*, "open ether," being always used. The results were not uniformly good, as the patients were often very rigid, or had spasms of coughing during the operation, for it is notoriously difficult to retain the patient at a uniform level of surgical anæsthesia by the open method.

Having read Gwathmey's article, I decided to try his method as an aid to the older method. This article is an attempt to give an unbiassed opinion as to the advantages and disadvantages of this combined method of anæsthesia, the remarks being based on an experience of seventy cases so treated.

In order to be able to compare the methods, we have kept statistics of twenty-four patients anæsthetized by open ether alone.

There has been no selection of cases for either method, the patients being chosen in a haphazard manner.

We began by using Gwathmey's original method, *viz.*, giving the patient the following mixture a quarter of an hour before operation:—

Ether, ½ oz. (14 mils)
Chloroform, ¼ drachm (1.75 mils)
Liquid paraffin or olive oil, to 1 oz. (28 mils)

the above being "sandwiched" between two mouthfuls of port wine. It was found, however, that the patient often vomited the mixture, so the next step was to give chloretone, grs. x. (0.6 gm.) 1½ hours before taking the mixture. This has almost completely abolished the vomiting.

It was also found that fifteen minutes was not a sufficient interval to elapse between taking the mixture and commencing the administration of the "open ether." The patients are usually in the exalted stage at this time, but by allowing 30 to 40 minutes to elapse, the patient is brought to the theatre in a drowsy condition, somewhat resembling the "fuddled" condition of an alcoholic. A few patients have come in asleep (five out of seventy cases). The great majority have been drowsy and a few hysterical.

In our experience, for major operations, the "gastric ether" has always to be reinforced by some further anæsthetic, as even the patients who are asleep will only tolerate the slightest manipulations, so that the method by no means obviates the need of an anæsthetist.

We consider, however, that it is a distinct advantage to be able to commence the induction of anæsthesia in the patient's bed and then to take him to the theatre in such a mental condition that all fear of the operation is forgotten. This must help to minimize shock.

A hypodermic injection of morphine, gr. ⅙ (0.01 gm.), has in some cases been given at the same time as the "gastric ether," but we have not been able to notice any difference between the cases so treated and the others.

We have increased the dose of "gastric ether" to 1½ ozs. (42 mils) of the above mixture, and in some robust men have given 2 ozs. (57 mils), this containing 1 oz. (28.4 mils) of ether and 1 drachm (3.5 mils) of chloroform. One and a half ounces (42 mils), however, is our routine dose.

During the operation it is noticed that the abdominal muscles are beautifully relaxed, and this, to one who has tried operating through a rigid abdominal wall, will be welcomed as one of the chief advantages of the method.

It was hoped that this method would result in a considerable saving of ether, but it has not proved to be so great as was expected. We have kept records in every case of the duration of the operation (commencing at the time when the "open ether" was started, not the operation itself, and ending at the time when the patient was removed from the table), together with the amount of ether used. From the whole of these figures I have worked out the average for an operation lasting one hour, and they result as follows:—

With gastric ether, 11.1 ozs. (315 mils)
Without gastric ether, 18.1 ozs. (514 mils)

thus resulting in a saving of 7 ozs. (nearly 200 mils) per hour. I averaged them up because the cases vary a good deal, so that it is not quite fair to compare individual cases.

Both the above figures may seem excessive, but they are derived from carefully kept statistics; probably with expert anæsthetists the figures on both sides would be considerably smaller. At the present price of ether the above represents a saving of nearly two shillings per hour; from it, however, must be deducted the price of the chloretone and the "gastric ether" dose, the former costing one penny and the mixture threepence halfpenny. This will lead to a considerable saving in the course of a year.

After the operation, the patient usually sleeps for four or five hours. He can usually be roused within an hour, but after that remains in a light sleep. The charge nurses are unanimous in stating that they prefer nursing patients anæsthetized by the combined method, as they seem to escape so much of the usual post-operative pain by their long sleep. Post-operative vomiting is neither more nor less than in ordinary cases.

To summarize the advantages, I would place them thus:—

(1) Loss of fear of the operation, thus lessening shock.

(2) Less ether used.

(3) Muscles well relaxed.

(4) Less post-operative pain.

The disadvantages are:—

(1) Slightly more pre-operative preparation, *viz.*, giving the chloretone and "gastric ether." This is very little extra, as no special preparation is necessary.

(2) In two cases the respirations have reached a very low rate after return from the theatre. In one of these, a man, aged 55, received 2 ozs. (57 mils) of the mixture and morphine, gr. ¼ (0.016 gm.), half an hour before the operation, which lasted 40 minutes; after the return from the theatre his respiration went down to eight per minute. He recovered without any other ill-effects. Another case the same day, a woman, aged 60, received 2 ozs. (57 mils) of the mixture and morphine, gr. ¼ (0.016 gm.), half an hour before operation, which lasted 68 minutes. After return from the theatre her respirations fell to three per minute. Artificial respiration for ten minutes relieved the situation, and she went on well for 24 hours, but then her pulse failed and she died about 36 hours after operation. The post-mortem examination showed a red hepatization of the lower lobe of the right lung. This may have been due to the stagnation of blood in the lungs during the period of slow respirations, or may have resulted from exposure of the chest wall during the operation, which was a radical breast excision. The latter is unlikely, in view of the fact that special precautions were taken to avoid such exposure. However, in view of the experience in these two cases, I would suggest 1½ ozs. (42 mils) of the mixture as the maximum, and especially if morphine is used in conjunction with it.

Men who have experience of rectal anæsthesia will find that, by this method, they can attain equal, if not better, results without any of the preparation necessary for the former, which adds to the work of the nursing staff and the worry of the patient.

Gwathmey has recently suggested substituting one drachm (3.5 mils) of paraldehyde for the half drachm (1.7 mils) of chloroform, with the object, I presume, of inducing sleep more quickly. We have, as yet, no experience of this.

The foregoing are the facts as we have observed them. No claim is made that this method represents the last word in anæsthesia, but I would suggest that in hospitals where the anæsthetists are not experts this method will have a definite and useful place.

I am indebted to the Superintendent, Dr. Birks, for access to the Hospital records and for permission to publish these notes.

Reviews.

PRACTICAL ANATOMY.

In his preface to a work on practical anatomy,[1] Professor Berry writes as follows: "Professor W. Krause, of Berlin, in the *Vorwort* to his *'Handbuch der Anatomie des Menschen.'* published in 1905, says that the significance of the B.N.A. can only be appreciated by the study of a text-book embodying its terms—a statement which sufficiently explains the *raison d'être* of the present work." "This book, like Krause's *Handbuch* already referred to, is intended to be used with Professor Werner Spalteholz *'Handatlas der Anatomie des Menschen.'* As that work contains more than 1,000 illustrations it is clear that if the student will provide himself with an edition of Spalteholz, the accompanying work is, in reality, the most freely illustrated manual of practical anatomy obtainable." It is this very fact which at the present time destroys whatever chance of success Professor Berry's book may have had, as Spalteholz's Atlas is for all practical purposes unobtainable, and even if it were, the total cost is more than the average student would care to pay for his manual.

The method of referring every few lines to a different figure in the Atlas is most cumbersome as well as irksome; for example, in the description of the piriformis muscle, which occupies some 25 lines of text, the reader is referred in order to figures 373, 374, 90, 175 and 820 in the Atlas. For the most part the text is a series of brief statements of fact, which makes difficult reading as compared to the easier and more discursive style in other works. Literal translations of the Latin phraseology, the omission of a hyphen in such terms as parietooccipitalis, parotideomasseteric, pectouterinus, etc., and the fact that the descriptive terms are uniformly morphological, make at times very awkward reading for the average student, and add to the other inherent difficulties of obtaining with any facility a clear understanding of the subject matter.

Among the good points observed one may cite the dissection of the middle cranial fossa following on immediately after the removal of the brain and in conjunction with the study of the *bosis cranii interna*; also, that in many places short references to comparative anatomy, as in the description of the pelvic floor, help the reader to an intelligent comprehension of the part.

In giving some space to describing the action of muscles, the author supplies a very important and practical point, which is usually sadly neglected in the teaching of anatomy. The references to lymphatic drainage areas and gland groups, although brief, are of service.

It is unfortunate that the author based his work on the assumption that a Spalteholz Atlas would be available at all times, as an otherwise creditable production, which must have involved years of thought and work, and which, moreover, is wholly Australian, has never gained the popularity it would certainly have enjoyed if the text had been amplified a trifle more, and the whole book been self-contained.

The publishers are to be congratulated on the excellence of their part of the work.

INDUSTRIAL TRAINING OF DISABLED SOLDIERS.

The Department of Repatriation is fathering a National Economy Exhibition in which the Department of Technical Education of New South Wales is demonstrating the working capacity of returned disabled soldiers. This exhibition is at present to be seen at the Town Hall, Sydney, and all who are interested in the training of disabled men should spend a half an hour or so in it. There is a small section divided into a number of compartments. In each compartment men are working at a special trade. These include joinery and cabinet-making, band-saw work, lathe work, pottery and boot-making. In each case the men have learnt the work as a new trade since their discharge from the army, and the visitor is struck by the manner in which the training has neutralized the physical war disability. The exhibition is an eloquent testimonial to the admirable methods of Mr. J. Nangle, Director of the Technical College, Sydney.

[1] Practical Anatomy, by Richard J. A. Berry, M.D. (Edin.), M.D. (Melb.), F.R.S. (Edin.), F.R.C.S. (Edin.); in three volumes. Melbourne, Sydney, Adelaide, Brisbane: George Robertson & Company Propy., Ltd.; Demy 8vo., pp. 404, 402 and 513. Price, 15s. per volume.

The Medical Journal of Australia.

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The End of the War.

The capitulation of Bulgaria, Turkey, Austria-Hungary and of Germany to the Allied Powers after four and a quarter years of the most destructive war the world has ever seen, marks an epoch for every class of the population and for every interest of mankind. This medical profession has perhaps more reason for rejoicing than any other section of the community. Added to the exultation of victory over the highly trained armies of Prussia, there is an intense satisfaction that those whose function in life is to heal, no longer need participate in the barbarities of war. The pride of belonging to an Empire that always wins its way through to victory, notwithstanding her habitual unpreparedness at the start, is tempered by the knowledge that British medicine has triumphed on account of its humane character, its high ideals and its scientific practicability. For a moment we can pause in our labours to join in the general thanksgiving; to give evidence of our gratitude to the sailors and soldiers of the British Empire and of her Allies for having crushed militarism, and for having secured the world from a menace of cruelty, oppression and tyranny. Yesterday the medical profession had its stern task of attending to the men in the trenches, and of sharing the dangers and perils of the war with the combatant troops. To-morrow the profession must continue the arduous task of minimizing the disabling effects of war wounds and war sickness, and of raising the efficiency of the returned soldier. To-day we dare to forget everything else than the fact of victory, and the fact that no further sacrifices are needed to safeguard the whole world.

A HEALTH PROBLEM AND ITS SOLUTION.

To the man in the street the institution of a hookworm survey by Dr. Waite, the representative of the International Health Board of the Rockefeller Foundation, in North Queensland, was but an interesting incident in the course of a number of scientific investigations. To the initiated it marked an event of the first magnitude in the campaign to improve the health of the community. Its true significance is far greater than was anticipated when this survey was first started. The Rockefeller Foundation offered to inaugurate a hookworm survey in any country where the Government would collaborate with the experts of the International Health Board, and would share the expenses with the Foundation. After some hesitation the Queensland Government agreed to accept the offer of a complete survey in the northern portion of the State. The plan was to determine the incidence of hookworm infestation of the population, and to institute treatment of all infested persons until cure was effected. This involves a campaign of educating the inhabitants on the importance of a proper means of disposal of excreta, and the conversion of defective latrines or privies into safe sanitary conveniences. Dr. Waite has completed the survey part of his undertaking, and has made some very important discoveries. Working from Cooktown to Townsville, with a population of approximately 15,000 inhabitants, he found that 3,100 were infested. This represents an incidence of nearly 21%. In the course of the survey over 3,000 latrines or closets were inspected, and he discloses the disquieting fact that less than 100 were found to be reasonably safe. The infestation among the population varies considerably. Some individuals are merely carriers and retain good health, while others bear the traces of severe anæmia. The infestation is more widely spread among children than among the adult population. Of the school children examined, between 40% and 50% were affected. About half of these children show marked anæmia, physical dwarfing and grave sexual retardation. Dr. Waite is able to produce evidence that the small stature and infantilism of the children of from sixteen to eighteen years are directly attributable to the hookworm, and disappear after adequate treatment has been carried out. Of even greater importance is the effect which this infestation has on the mental development. With the assistance of trained observers the mental age of 350 children was determined by the Binet-Simon and the Porteus tests. Among these

children there were 159 heavily infested. The average mental retardation of these children was two years. In the case of the younger children, between the ages of six and seven years, the retardation was naturally a matter of a few months, while at the other end of the scale the retardation for the sixteen year age group was four years. In addition there were 65 lightly infested children, and there was an average of nine months' retardation. This was not exclusively due to the hookworm. The remaining 115 children were unaffected, and included two who were low grade mental deficients from other causes. The total average retardation was three months.

Treatment was afforded to all persons found to be affected and willing to submit. In 70% complete cures were obtained. The municipal authorities were induced to undertake the reconstruction of the defective latrines. No less than 1,500 have been rendered safe and sanitary, while the work of rebuilding the other 1,500 is proceeding. One further fact calls for record. About 400 aborigines were examined, and it was found that 75% of them were infested. These people do not use latrines, and are notoriously careless in regard to the disposal of their excreta.

The facts related above tell a story which no Australian can afford to neglect. In a large and important area of the Commonwealth, with prospects of rich developments, the race is being undermined by a serious intestinal infestation, the individuals becoming undersized, sexually inferior and mentally under-developed. The survey has brought to light the incidence of this serious affection. In the course of the campaign the expert has been able to remove the disabilities of the individuals, and has introduced a sanitary conscience which, if maintained, will keep at bay not only this disastrous plague, but also such insidious infections as enteric fever and the like. Treatment is capable of preventing the enormous amount of mental deficiency with its unlimited potentiality for crime and suffering. But it must be remembered that the expert of the International Health Board cannot be asked to continue the work of controlling the situation and watching to see that there is no backsliding. The time has arrived for Australians to take over the work, at first partially and later in its entirety. Unfortunately, no machinery exists for this to be effected properly. There are two possibilities. One of them must be put into effect without loss of time, if the valuable labours of Dr. Waite are to be utilized for the benefit of the Australian community. The Queensland Government might engage the services of a series of highly trained health officers to conduct the work on a permanent basis. Their work would have to be controlled from headquarters, and it would be necessary to establish an extended administrative health department either in Brisbane or in Townsville. The fact that at present the Board of Health has difficulty in controlling the hygienic activities of the municipalities, owing to shortage of medical officers, the desire to economize on the part of the Government, and other reasons constitutes an objection to this plan. The second possibility would be for the Queensland Government to request the Federal Government to undertake this work, on the ground that it is of national significance, and to leave the control to them. The Federal Government has already taken up this work with the Foundation in Papua, and it possesses machinery for the guarding of our coasts against invasion by infective diseases from foreign ports. This machinery, extended to some extent, would suffice to guarantee that the work begun will be continued with the same degree of efficiency. Whatever is done must be done quickly, for the matter at stake is the well-being of a section of the Australian community. If the Queensland Government finds that it cannot undertake to carry out this work properly and expeditiously, it should lose no time in appealing to the Federal Government to relieve it of the responsibility. In this event, the Federal Government, which exists for the benefit of the Australian people, would have no valid excuse for holding its hand.

THE TASMANIAN GOVERNMENT AND THE MEDICAL COUNCIL.

The Medical Council of Tasmania, like the medical boards of the other Australian States, and like the General Medical Council of Great Britain and Ireland, has statutory powers to cause the names of specified individuals to be entered in a medical register, and to remove a name already entered in definite circumstances. It is not questioned that when registration has been effected by misrepresentation

and fraud, the Medical Council has a very definite duty to perform. When a charge of this kind is made the Council must institute a searching enquiry, and obtain sufficient evidence to enable it to determine whether the charge is true or false. If it is found to be true, the Medical Council must remove the name of the respondent, while, if false, the respondent has the usual remedy at law, if he considers that a trumpery or frivolous charge has been brought against him

In 1907 the Medical Council in Tasmania received an application from Victor Richard Rattan for registration. The members of that body presumably examined a document purporting to be a diploma or certificate of the degree of doctor of medicine of the Harvey College of Chicago, dated 1907. The registration was granted. Apparently no one questioned the validity of this diploma, nor does it appear that the attention of the medical profession was directed to the nature of the qualification until 1917 or early in 1918. Circumstances then arose which led to the institution of enquiries and, as a result of these enquiries, the Tasmanian Branch of the British Medical Association was informed on unimpeachable authority that the Harvey College issued diplomas prior to 1902, but that these diplomas were not recognized throughout the United States of America for registration purposes. The course of instruction prescribed, according to the prospectus, was said to have been of four years' duration. The Branch was further informed that in 1902 the College lost its charter, and that in 1905 it ceased to exist as the Harvey College, and after amalgamation with a college called the Jenner College, lost its identity and name. In view of this information the Tasmanian Branch of the British Medical Association held it to be its duty to move as complainants before the Medical Council. Acting on the information obtained from a highly reliable source, the Tasmanian Branch claimed that the Medical Council had been misled in 1907, in granting a certificate of registration to Victor Richard Rattan, on the ground that the Harvey College was extinct at the time of the issue of the diploma, and consequently could not have issued a diploma nor given medical instruction. The Tasmanian Branch held that it would be essential to bring evidence concerning the maximum time the respondent could have spent in Chicago for the purpose of receiving medical instruction, since, if it could be proved that he had been absent from Australia for a period very materially shorter than the duration of the prescribed course, and too short to justify any licensing body to issue a diploma, the diploma could not be regarded as a valid one. It was consequently held to be important that the Medical Council should admit evidence during the enquiry concerning the length of the course of instruction given to the respondent. It will be noted that the charge is a very serious one and, if substantiated by the evidence, would involve a criminal offence.

It will be remembered that Mr. Rattan approached the Premier before the Medical Council started its enquiry, and asked for the setting up of a special tribunal. The Premier agreed to this suggestion on the ground that the complainants were the Tasmanian Branch of the British Medical Association, and the majority of the members of the Medical Council were members of that body. We cordially agree with this, although we cannot admit that the Medical Council would have conducted the enquiry in a prejudiced manner. In his statement in the Legislative Assembly, the Premier announced that a Royal Commission would be appointed to enquire into whether the Harvey College was in existence in the year 1907. The impression conveyed by this narrow scope to the enquiry was that the Government was endeavouring to shield its *protégé*, and relief was felt when the Premier gave an assurance that the reference to the Royal Commission would be to enquire into the validity of the diploma. In the meantime, the Premier sought the assurance of the Medical Council that it would not proceed with its enquiry. Several letters passed and interviews were held. The Medical Council held strongly that the scope of the enquiry should be as wide as that which would have been held by the Council, while the Government refused to include in the reference any enquiry into the course of study. Unexpected delay took place, and on October 31, 1918, the Premier addressed two letters, one to the Medical Council, and the other to the Tasmanian Branch. In these letters he endeavoured to show that the delay had been occasioned by the action of the Medi-

cal Council. He set forth the reference to the Royal Commission in the following terms:—

> To enquire into a report upon charges made by G. Brettingham Moore, Honorary Secretary, of, for and on behalf of the British Medical Association of Tasmania to the President and Members of the Medical Council of Tasmania against Victor Richard Rattan, Surgeon-Superintendent of the Hobart General Hospital
>
> (*i.*) That the Harvey Medical College did not exist at Chicago, in the State of Illinois, in the year 1907; and
>
> (*ii.*) That the diploma which the said Victor Richard Rattan produced in Tasmania in the last-mentioned year, and by which he secured registration as a legally qualified medical practitioner, was not granted to him by the said Harvey Medical College.

The Premier further informed the recipients of each letter that it must be distinctly understood that, notwithstanding the provisions of *The Evidence Act, 1910*, the Government would not be responsible for the expenses of any witness called to or examined by the Commission. The witnesses would have to be paid by those who called them.

Dr. E. Brettingham Moore, in his capacity of Honorary Secretary of the Tasmanian Branch of the British Medical Association, wrote to the Premier on October 31, 1918, protesting that the terms of the charges quoted by the Premier as being the terms of the charges made by his Council, were inaccurate. The claim made by them was that the Harvey College at the time of the issue of the diploma had ceased to exist as an institution competent either to impart adequate medical instruction, or to grant degrees entitling the recipient to practice in the country of origin. The writer further referred to a cablegram to the effect that the name of Victor Richard Rattan did not appear in the list of students or graduates of the Harvey College. This cablegram had been dispatched by so authoritative a body as the Council on Medical Education of the American Medical Association. Dr. Brettingham Moore further protested that against the Premier's proposal that the provisions of *The Evidence Act* should be ignored in connexion with the enquiry.

The attitude of the Government is very difficult to follow. It is claimed on information received from uninpeachable sources that Victor Richard Rattan presented a document which was not a valid diploma, and obtained registration in the State in virtue of this document. The Medical Council was empowered by law to grant registration on the production of evidence that the holder had passed through certain courses of study, and had received a diploma, certificate or other document from the institution conducting this instruction, after the individual had presented himself for examination, and had satisfied the examiners that he possessed an adequate amount of knowledge. If the document presented by Victor Richard Rattan was acquired in some way other than that prescribed by the licensing body, or by the Tasmanian act of Parliament, the fact that it was accepted by the Medical Council in 1907 will not protect him from suffering the penalties for fraudulent representations. This matter must be enquired into. The enquiry must be conducted impartially, and all relevant evidence must be admitted. The findings of the Commission after exhaustive enquiry into all the circumstances will be regarded as final, but a trial limited by a convenient reference or charge, and conducted in a manner dictated by the employers of the respondent, will not be accepted by the medical profession in Australia.

EPIDEMIOLOGY OF PHTHISIS PULMONALIS.

The existence of different strains of the *Bacillus tuberculosis* has been recognized for many years. The "human," "bovine" and "avian" strains are those which have been identified with most certainty. During recent years much study has been devoted to determine the race of tubercle bacilli associated with tubercular lesions in different persons. While it has been known that some types of tubercular disease occur more frequently in the young, and are more commonly produced by "bovine" bacilli, it has never been supposed that all lesions of any organ might be due to this type of *Bacillus tuberculosis*. Dr. John Brownlee has put forward[1] the view that pulmonary tuberculosis occurring in persons over ten years of age is not a single disease, but is constituted of two, perhaps of three, separate diseases, produced by different strains of the *Bacillus tuberculosis*. This hypothesis is advanced as a result of a statistical study of the mortality from phthisis in the British Isles. The chief feature of the mathematical analysis is the use of the figures for each county to determine the nature of the composite curve for the population as a whole. It has long been known that tables and graphs dealing with figures of composite origin may fail to exhibit the characters of the individual figures from which the aggregate results are compiled. Separate analysis may be just as important as a study of averages or of massed data.

[1] "An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland," Special Report Series, No. 18; Medical Research Committee, National Health Insurance; London, 1918.

Dr. Brownlee has dealt with the mortality from pulmonary tuberculosis, expressed as a death-rate for each county in Great Britain and Ireland. The death-rate for each quinquennial group of ages has been utilized for the decades from 1850 to 1910. A mere glance at the graphs of these mortalities revealed that they could be separated into two groups. In one group the mortality at the twenty-fifth year was much less than that between forty and forty-five years, while in the other group the mortality at the twenty-fifth year was as great or greater than that later. Attempts were made to account for these differences by reference to such circumstances as environment, occupation, climate and the elimination of susceptible persons by natural selection. While the influence of these factors could be observed in the death-rates in different districts, none of them afforded any adequate explanation of the phenomena exhibited by the curves as a whole. Dr. Brownlee was led to assume the existence of three elementary types of disease constituting what was previously regarded as *Phthisis pulmonalis*. The first type chiefly affects young adults, the commonest age at death lying between twenty and twenty-five years. The second type is mainly found in those of middle age, the most common age at death falling between forty-five and fifty-one years. The third type attacks persons in old age, the majority of deaths occurring between fifty-five and sixty-five years. The evidence for the existence of these types is derived from the mathematical analysis of the curves for nineteen counties. By assuming the existence of different proportions of these three types Dr. Brownlee has been able to calculate death-rates agreeing closely with those actually observed.

The Medical Research Committee of National Health Insurance publishes this investigation as a special report, and points out the novelty of the method of research. The Committee considers that further use should be made of statistical studies, since they have shown the existence of forms of phthisis before the bacteriologist or clinician has recognized their existence. Whatever view may be held as to the way in which the forms of pulmonary tuberculosis are produced, Dr. Brownlee has advanced convincing proof of the existence of different types of pulmonary tuberculosis, which have distinct epidemiological histories. What he terms the "middle age" type of disease reached its zenith more than a century ago, while the maximum of the "young adult" type occurred much later, probably about fifty years ago.

Should bacteriologists confirm the existence of different strains of *Bacillus tuberculosis* accounting for distinct forms of *Phthisis pulmonalis*, the treatment by vaccines will undergo a distinct change. It is evident that the differences in the results obtained by various physicians with vaccine therapy in tuberculosis may be due to their use of different strains. The essential feature of this form of treatment is the use of immune agents which are strictly homologous. Just as the recognition of this fact has led to a revolution in treatment and prophylaxis in regard to enteric infections, tetanus, pneumonia and cerebro-spinal fever, so the separation of strains of tubercle bacilli initiating varieties of pulmonary tuberculosis may render more precise the immunological treatment of pulmonary tuberculosis.

Naval and Military.

CASUALTIES.

The 440th list of casualties, which was issued on November 8, 1918, contains the names of 1,133 members of the Australian Imperial Force. It is with great regret that we note that Captain Robert Percy Young has been killed in action.

HONOURS.

In the *Commonwealth of Australia Gazette*, dated November 7, 1918 (No. 173), the various awards of distinctions granted on the occasion of His Majesty's birthday to members of the Australian Imperial Force are reproduced from the *London Gazette* of June 3, 1918. In the same publication are abstracts from the *London Gazette* of June 14, 1918, dealing with the names of members of the Australian Imperial Force mentioned in General Sir E. H. H. Allenby's despatch of April 3, 1918. The following are the names of the medical officers of the Australian Army Medical Corps included in the two lists:—

To be Additional Member of the Third Class or Companion of the Most Distinguished Order of Saint Michael and Saint George—

Colonel Robert Beveridge Huxtable, D.S.O., V.D., A.M.C.

Awarded the Distinguished Service Order—

Major Francis Lawrence Bignell, A.M.C.
Lieutenant-Colonel Edward Thomas Brennan, M.C., A.M.C.
Major Arthur Ross Clayton, A.M.C.
Major Albert Tange Dunlop, A.M.C.
Major Thomas Charles Cann Evans, A.M.C.
Captain Mervyn John Holmes, A.M.C.
Lieutenant-Colonel William Elphinstone Kay, A.M.C.
Lieutenant-Colonel (temporary Colonel) Frederick Arthur Maguire, A.M.C.
Lieutenant-Colonel Balcombe Quick, A.M.C.
Lieutenant-Colonel (temporary Colonel) Arthur Edmund Shepherd, A.M.C.
Major Walter Jaques Stack, A.M.C.
Major Wilfred Vickers, A.M.C.
Lieutenant-Colonel Arthur Lacy Dawson, A.M.C.

Awarded the Military Cross—

Captain Ivan Bede Jose, A.M.C.
Captain Norman Reginald Mathews, A.M.C.
Captain John Alexander Shanasy, A.M.C.

To be Officer of the Most Excellent Order of the British Empire—

Lieutenant-Colonel William Ernest Grigor, A.A.M.C.

Mentioned in Despatches—

Lieutenant-Colonel R. Fowler.
Captain E. T. Pascoe.
Major C. V. Single.
Major (temporary Lieutenant-Colonel) G. E. M. Stuart.

We learn that Captain Frank William Fay, M.C., has been awarded a Bar to the Military Cross, and that Lieutenant-Colonel Arthur Mitchell Wilson and Major Frederick Neill Le Messurier have been awarded the Distinguished Service Order.

APPOINTMENTS.

The following notice appears in the *Commonwealth of Australia Gazette*, No. 173, of November 7, 1918:—

Australian Imperial Force.

The Governor-General in Council has approved of Captain J. G. Skeet being transferred from the Naval and Military Expeditionary Force and to be Captain. Dated 30th August, 1918.

Abstracts from Current Medical Literature.

PATHOLOGY.

(162) Cultivation of Entamœba Histolytica.

D. W. Cutler describes a method of obtaining cultures of *Entamœba histolytica* from fæces (*Journ. Path. and Bacteriol.*, January, 1918). The amœbæ retain their vitality on sub-culture, and are capable of giving rise to dysenteric lesions in the intestines of cats. It has not been possible to obtain cultures from every sample of human fæces containing *E. histolytica*. Six cultures have been separated as the result of forty-five attempts. Two media have been used, one made with the white and yoke of eggs, the other with blood clot. These media are broths containing additional proteins. The inoculations have been made into tubes to which a few drops of fresh blood had been added, with material not more than three hours old. The cultures have been incubated for twenty-four hours at 30° C., when a microscopical examination has revealed the presence or absence of amœbæ. To maintain the amœbæ in culture it is necessary to inoculate fresh tubes daily. Detailed histories are given of the six cultures that have been separated. The amœbæ vary greatly in size after cultivation. The large forms, common in stools containing much blood and mucus, are replaced by amœbæ about half their size, and by much smaller organisms about one quarter their size. The cytoplasm is homogeneous and vacuolated. In unstained preparations the amœbæ are active, throwing out pseudopodia freely. The nucleus contains a nucleolus centrally situated. Cyst formation could be induced by ceasing sub-cultivation for three or four days, and then placing the material in an ice chest for two hours. On feeding cats with material from the cultures containing cysts, dysenteric ulceration has been produced with each of the six cultures. The ulcers in the cats contained amœbæ. The nuclei in these amœbæ are like those of the amœbæ found in the human subject, but often there is a large central karyosome.

(163) Wassermann Test.

Chung Yik Wang describes a simple, but reliable method of collecting blood for performing the Wassermann reaction (*Journ. Path. and Bacteriol.*, January, 1918). He uses a pricker and some pieces of filter-paper of the size of a sixpence. The thumb or lobe of the ear is pricked in the usual way and specimens of blood are taken with the papers, which are conveniently held with forceps. The blood is allowed to moisten each paper completely. If the drops are of the same size the quantity of blood or serum sucked up will be roughly uniform. The papers are allowed to dry either in the room, or in an incubator if it is available. The papers are used by dropping them into the tubes along with the antigen and complement, and then proceeding in the ordinary way with the test. Each paper is considered to hold one dose of antibody. By choosing the paper of a suitable thickness, and cutting the pieces to the exact size of the drop, the method gives sufficient accuracy. The author details the results of a series of tests which demonstrate that the dry blood gives similar results to those obtained with the use of the liquid blood or serum.

(164) Endothelial Leucocytes.

F. A. McJunken and A. Charlton (*Arch. Intern. Medicine*, August, 1918) describe a simple method of identifying endothelial leucocytes in differential enumeration of colourless blood corpuscles. The process is applicable to blood films and serves by an indophenol staining reaction to bring out characteristic cytoplasmic granulations in the endothelial leucocytes. The colouration is produced in the following manner. A blood film made in the usual way on a 22 mm. square coverglass is covered for thirty seconds with five drops of an alcoholic solution of alpha-naphthol-methyl-violet. When the preparation is fixed the stain is diluted with distilled water and allowed to act for five minutes. The film is washed with water, counterstained with basic fuchsin for two minutes, washed again, dried in the air and mounted in balsam. The nuclei and cytoplasm are coloured red, except the cytoplasmic granules of neutrophile, eosinophile and endothelial leucocytes. The granules of basiphile leucocytes are coloured red. The lymphocytes show red cytoplasm entirely free from blue granules. The distinction between neutrophile and endothelial leucocytes is made upon the character of the granules and the relationship between the nucleus and the granules. The granules of the endothelial leucocyte are discrete, and the cytoplasm is revealed between them. The nucleus is mononuclear, and often presents an irregular outline, but does not exhibit pyknotic masses connected by filaments.

(165) Growths in Colloidal Silica Solutions.

H. Onslow (*Proc. Roy. Soc.*, London, B., July, 1918) has studied the nature of the growths which form in colloidal silica solutions. Dr. Charlton Bastian claimed to have synthetized symmetrical bodies resembling torulæ and other minute organisms in sterilized liquids exposed for a long period to the light. The "organisms" were stated to be capable of reproduction. The author has repeated as exactly as possible the experiments of Bastian, making use as far as possible of the same material, and of vessels made of the same glass as that used in the earlier work. The tubes of the media have been sterilized with many rigid precautions, to avoid contamination. Three varieties of media have been used, *viz.*, ammonium tartrate and sodium phosphate culture fluid, nutrient broth and tryptic broth. After the tubes have been sterilized they have been kept at 37° C. for one month and in subdued daylight for three years. In ten sets of experiments of ninety tubes each only one tube has contained an organism which could be grown upon sub-culture. A square-ended bacillus could be seen in many tubes, but was dead. Some tubes contained appearances similar to those observed by Bastian. The author considers these to be flocculent masses of colloidal silica around dead bacilli.

(166) Isolation of Bacteria in Gaseous Gangrene.

E. Sacquépée (*C.R. Soc. Biol.*, Paris, May 25, 1918) has introduced some new methods for isolating bacteria in cases of primary, but not secondary, gaseous gangrene. The first procedure described is that of placing pieces of gangrenous muscle in a sterile tube with a few drops of physiological salt solution for several weeks at room temperature. The macerated mass is injected into a guinea-pig. The animal usually dies. The lesions are similar to those produced by the inoculation of similar fresh material, but are produced more slowly. From the lesions cultures are made in the same way from fresh tissues. Another process is to allow the spontaneous maturation to take place and to heat the material for fifteen minutes at 75° C. before inoculation. A third proceeding, which is considered less satisfactory, though more rapidly performed, is to macerate in the incubator in salt solution. After a week the muscle is teased up, heated and inoculated into guinea-pigs. By these methods the author claims to demonstrate *Bacillus bellonensis* or the bacillus of malignant œdema in most cases of primary gaseous gangrene. The *B. bellonensis* has been isolated on 27 occasions and the bacillus of malignant œdema on 17 occasions in 54 gangrenous affections.

(167) Virus of Poliomyelitis.

H. S. Amoss (*Journ. Exper. Medicine*, March, 1918) has shown that suspensions of the brain or spinal cord of monkeys containing the active filterable virus of poliomyelitis may be injected into the brain of the rabbit without setting up symptoms of poliomyelitis, provided that the volume of the injection does not occasion dangerous increased intracranial pressure. The active virus survives in the brain of the rabbit for 4 days, as determined by inoculation into monkeys. At the end of seven days the disease cannot be induced by inoculation of material from the rabbit's brain. The virus of poliomyelitis neither induces lesions nor survives long in the central nervous organs of the rabbit. The rabbit is highly susceptible to certain streptococci cultivated from poliomyelitic tissues, so that these experiments constitute additional evidence that streptococci are not the microbic cause of epidemic poliomyelitis.

PÆDIATRICS.

(168) Active Immunization Against Diphtheria.

From a study of various mortality and morbidity statistics there is definite evidence that the morbidity and mortality from diphtheria is quite high and constant, showing that (*a*) in spite of the extensive use of small prophylactic doses of antitoxin, the total number of cases of diphtheria has not been reduced to any extent; (*b*) the measures taken in isolating and treating the temporary or more persistent carriers of diphtheria bacilli are of little benefit in accomplishing results on a large scale. Children from one to five years of age are most susceptible to the disease, and show by far the greatest mortality. Laryngeal diphtheria and complicating broncho-pneumonia are seen especially in this group of children. The mortality from diphtheria is nearly as great as that from measles and scarlet fever combined. Recent investigations on the subject of natural and active immunity in diphtheria and studies with the Schick test show that the protection of the infant, derived from the mother, is only temporary, and lasts about six to nine months after birth. Some children retain this natural immunity for about a year, and some are protected for even 1½ years. The period of greatest susceptibility to diphtheria is between the first and the fifth years of life. After the sixth year the number of children giving a positive Schick reaction diminishes rapidly. From a prolonged experience, extending over a number of years, Zingher (*Amer. Journ. of Dis. of Children*, August, 1918) notes certain important facts in connexion with the Schick test and the active immunization with toxin-antitoxin. The negative Schick reaction, when properly carried out with a suitable diphtheria toxin, indicates quite definitely the presence of immunity to diphtheria. The negative Schick test is of value, not only in showing an immunity to diphtheria at the time the test is made, but also in indicating in children over 1½ to 2 years of age the development of a natural immunity, which seems to be permanent. In children below six to nine months of age the immunity, as revealed by a negative Schick reaction, is only temporary and derived from the mother through the placental circulation. In breast-fed infants antitoxic antibodies are also derived through the breast milk. Those whose mothers have no immunity of their own, are susceptible at birth, while most of the others, whose mothers are immune, become susceptible from six to nine months after birth. An increasing proportion of children gradually develope a natural immunity to diphtheria. In adult life 85% to 90% have become immune. By actively immunizing all children under twelve to eighteen months, and only those children over eighteen months who give a positive Schick reaction, it is possible to render the child population immune to diphtheria and abolish it over the period of greatest susceptibility. A lasting active immunity with diphtheria toxin-antitoxin can be procured in from 95% to 100% of susceptible individuals. All children thus immunized have remained free from diphtheria for a period of from three to four years, and still give a negative Schick reaction. The character of the immunity produced by the injection of toxin-antitoxin may be either an active immunity similar to that following other forms of vaccination, or it represents the earlier development of a natural immunity that would have gradually developed later, or it represents a combination of these two factors. In conclusion, the author holds that all infants below twelve, and, if possible, below eighteen months of age, should be actively immunized with three doses, each 1 c.cm. of toxin-antitoxin. These injections should be given irrespective of the reaction the infants may show at the time of immunization. The injections are given subcutaneously at seven-day intervals, the same dosage for young infants and older children. All children over eighteen months of age, as well as all youths and adults, should be tested with the Schick reaction first, and only those giving a positive reaction immunized with toxin-antitoxin. In infants below eighteen months the Schick test is not a necessary part of the routine, which otherwise would become too complicated for the general practitioner. The toxin-antitoxin mixture should be prepared in a reliable laboratory and carefully tested for potency in the guinea-pig before being sent out for use. The mixture should be slightly toxic. Multiple injections give a higher percentage of successful immunizations than single doses. Active immunization should be carried out on all infants and in all children and adults, contacts and others who give a positive Schick reaction.

(169) Complement Fixation in Pertussis.

In a previous communication Huenekens reported that it was possible to demonstrate specific antibody formation after a prophylactic injection of pertussis vaccine by means of the complement-fixation test. In none of his cases treated with small doses could any antibodies be demonstrated, whereas large doses showed antibodies in 44% of cases. Freshly prepared vaccines were apparently more effective than the stock vaccines, as 60% of the patients treated thus gave a positive fixation test. In his present report (*Amer. Journ. of Dis. of Children*, July, 1918) the author has enlarged his series of cases employing vaccines of varying ages, in varying doses. He found that pertussis vaccine from two to three months old employed in very large doses (one billion and over) immunized in only 12½% of cases. Two to four weeks' old vaccine conferred immunity in from 25% to 75% of cases. Freshly prepared vaccine, employed in the same dosage, showed evidence of antibody formation in 94% of cases. When used in still larger doses (one, one and a half and two billion bacilli) 100% positive reaction were obtained. Antibodies were demonstrable within one week after the last injection. His conclusions are that pertussis vaccine should be employed only when freshly prepared (less than seven days old) and without preservative. The most effective dosage is one billion, one and one-half billion and two billion bacilli, given on alternate days for three doses. It is most effective as a prophylactic, but should be of great value in the early catarrhal stage of pertussis. In doubtful cases of pertussis the vaccine should be administered before an exact diagnosis can be made, especially during an epidemic or where there is a history of previous exposure. Studies were made to determine how long the positive complement fixation test persisted. It was possible to test thirteen cases after an interval of three months. Three only gave a positive test, and, with the lapse of six months, all reactions were negative. It is agreed, however, that, though all antibodies have disappeared from the blood, still a considerable immunity remains, for the patient once having gone through the process of antibody formation is able to repeat the process more readily and more quickly in subsequent infections.

(170) Vaccines in Pertussis.

Reports as to the value of vaccines in the treatment of pertussis have proved so contradictory that Barenberg (*Amer. Journ. of Dis. of Children*, July, 1918) records his experiences with pertussis vaccine in a large number of institutional cases of the disease. He divides his cases into five groups: (1) early prophylactic, (2) late prophylactic, (3) unvaccinated, (4) curative vaccination, and (5) those who had previously received prophylactic treatment, as well as curative and prophylactic treatment in this epidemic. In Group 1 there were 41 patients given a series of vaccinations three weeks or more before they were transferred to become possible contacts. About 70% did not develope the disease, but twelve patients did, three very severely. Group 2 showed 220 patients, of which number exposed to infection 41% contracted pertussis from two to twelve weeks after vaccination. The average duration of the disease was six weeks. One was a case of mild recurrence after four years. In Group 3 nine of the eighteen cases developed the disease, with an average duration of eight weeks. Group 4 comprised twenty-eight children who received a "curative" treatment of three (or four in very severe cases) injections up to two billion bacteria. The vaccine appeared to accomplish little, as 60% had to be classed as severe cases. In Group 5 were twenty-three children who had received prophylactic treatment about three years before, as well as curative or prophylactic treatment in this epidemic. The duration and severity of these cases did not apparently differ from the other cases. It would therefore appear that pertussis vaccine, given even in large dosage, has no curative effect, nor does it tend to lessen the severity of the disease. As regards its prophylactic value, the case is different. The percentage of vaccinated children who develope the disease is considerably less than with the unvaccinated.

EPIDEMIOLOGY OF PHTHISIS IN GREAT BRITAIN AND IRELAND.

The Medical Research Committee in connexion with National Health Insurance publish their eighteenth special report, which deals with a statistical investigation into the epidemiology of phthisis in Great Britain and Ireland by Dr. John Brownlee. This investigation treats of the subject in four parts. In the first part are discussed the data which have accumulated since the introduction of the registration of deaths in the year 1856. The second part is concerned with the data which were recorded before that year. The third part will elaborate the various hypotheses which have been advance to explain the decline in the amount of *Phthisis pulmonalis* during recent years. In the fourth part will be discussed the geographical and climatological distribution of phthisis in the British Isles. The first two parts have been completed, and form the basis of this report.

The Medical Research Committee point out that the results of this statistical analysis offer evidence that phthisis is a disease not of single type, but of at least two and perhaps of three types, distinguished by the characters of their incidence at different ages of life. One type is manifested chiefly in the young adult, the most common age of death lying between 20 and 25 years; a second type appears at middle age, leading to death most commonly between 45 and 50 years, while a third type occurs in old age with the greatest number of deaths falling between 55 and 65 years. These types of phthisis show different geographical distributions in the British Islands, which can be detected by the separate analyses of the mortality returns for particular regions. The Committee remark that clinical observation has not led to any separation of phthisis into distinct varieties attacking life at different ages. Such phenomena as have been observed relevant to different forms of the disease have been assigned to the changing characters of the human host rather than to distinctions of the strain of the invading parasite. The conception of types among the tubercle bacilli is not novel. If the existence of various strains is established, phthisis would present a similar range of forms of disease, as is shown by the ailments due to the enteric group of micro-organisms, the tetanus bacilli, the cocci of pneumonia or those of cerebro-spinal fever. If bacteriologists confirm the hypothesis of Dr. Brownlee, it will be possible to extend the medical treatment of phthisis so as to involve the use of preparations specific for each type of organism. The Committee also refer to the relation between the form of the disease found in different areas and that due to occupation. Phthisis among miners in Cornwall or among bootmakers in Leicestershire must be studied in relation to the distribution of phthisis among the inhabitants of these counties. The relative lateness in life of phthisis among tin miners and the earliness of phthisis among bootmakers cannot be attributed to the effecs of occupation, when the lateness is found to be characteristic of all phthisis in Cornwall and the earliness to be the distinguishing feature of all phthisis in Leicestershire.

Dr. John Brownlee limits his discussion of the statistical information relating to the occurrence of *Phthisis pulmonalis* in England, Scotland and Ireland to the cases of this disease which occur above ten years of age. The data at his disposal relate to the number of deaths alone, since the notification of phthisis has not been sufficiently long in existence to permit of the accumulation of sufficient evidence. The statistics that have been examined are contained in the publications of the Registrars-General of England, Scotland and Ireland. They cover a period of over fifty years. The study has not been confined to the figures for each of the different kingdoms in the British Isles as a whole, but the enquiry has extended, as far as information is available, to each county in detail, and, in some instances, to groups of registration districts in these counties. It is not sufficient to compare the number of deaths from phthisis with the number of persons living in each different district. Since the deaths in one district may be almost wholly among young persons, while the chief ravages of the disease in another may occur at later ages in life, a comparison thus becomes meaningless. The use of the mean age at which the deaths occur does not afford better information, since the populations in different places vary in regard to the proportion of inhabitants at different ages. Thus cities contain a larger proportion of young persons. Dr. Brownlee has selected for comparison the ratio between the number of deaths at each age period and the number of persons living at the same age period. This ratio is usually defined as the death rate and expressed in parts per thousand. Although death rates at each age period give a better measure of the susceptibility to a disease than deaths, the former fail to present an exact measure. In only one set of conditions do the death rates at each age give an exact measure of the mortality at each age. When the population prior to the period under examination has not been exposed to the morbific agent for many years, these conditions are satisfied. The proportion of persons susceptible to the disease at each age is undisturbed by previous mortality due to the disease.

The data concerning phthisis in England from 1851 to 1910 are contained in the Decennial Supplements of the Registrar-General. The figures for the five decades from 1851 to 1900 have been plotted for each decennial age group from ten to eighty years. The graphs show the changes which have taken place in the curves of the death rates from phthisis from decade to decade during the last sixty years. A glance at the diagram reveals the fact that a great diminution in the mortality from phthisis has occurred during the period examined. Even more remarkable is the unequal manner in which the reduction of mortality is distributed over the various ages. The most conspicuous fall in the death rate has taken place between the ages of 20 and 25 years. The charts also show a discontinuity in the curve of mortality in the first two decades of life. Such an acute turning-point in a curve describing the course of mortality of a disease is rare. The curves of the death rates from phthisis for males and for females are absolutely distinctive. The curves representing the mortalities for females in different decades are throughout smooth and continuous.

The interpretation of these curves is only possible as a result of analyses of the mortalities in the different districts which comprise the whole area. The death rate among males for each age period for every county in England has been calculated for the purpose of exhibiting the types of distribution. It has been found that the age distribution can be analysed at a glance into two types. In one of these the mortality at the early ages is low in comparison with the mortality at the middle ages. The chief examples were shown by Lancashire, the West Riding of Yorkshire, Staffordshire, Warwickshire, London and the Home Counties. In the other type the susceptibility in the early ages is at least as great as in the middle ages. Some graphs have been made to show the mortality in North Wales, South Wales, Devon, Norfolk, London and Northumberland. An examination of these diagrams shows how combined mortality curves for England and Wales fail to present adequate information as to the epidemiology of phthisis. In North Wales the mortality curves make a very rapid ascent, reaching their maxima between the ages of 20 and 25 years. The mortality at this age period is extreme, and nearly double that found for England and Wales as a whole. The decline from this maximum is nearly as rapid. Between the ages of 40 and 60 years the curve is almost horizontal. In London the form of the mortality curve is for all decades quite different. The curve is almost symmetrical, rising to a maximum between the ages of 45 and 55 years. With each decade the height of the maximum becomes lessened.

As far as Scotland is concerned, the mortality from phthisis cannot be followed historically with the same detail as with England. It is only since 1881 that information is given as to the number of deaths in each county. Full information exists for the cities of Scotland, but, unfortunately, this apparent advantage recalled with a sense of weariness to Dr. Brownlee the trite simile of "the whited sepulchre," in this case better termed "the whited cenotaph." At Glasgow and Edinburgh the chief poor-house hospitals were situated without the city boundaries and a proportion of the deaths from phthisis belonging to the city were credited to the county in which the city was placed. In the opinion of Dr. Brownlee, this fact has contributed to the general adoption of the system of dispensaries for phthisis, since the extraordinary low death rate of the city of Edinburgh has demonstrated the extreme value of such institutions. Previous to 1909 no statistics of any value in regard to phthisis exist for Edinburgh and Glasgow. The counties show similar mortalities to those exhibited by the English counties. The

mortality curve for Shetland may be taken as representing the age distribution of phthisis, which is most nearly unaffected by the presence of deaths from phthisis, either in middle age or from old age.

Much less information is available for Ireland. The early statistics refer to the years in the middle of the last century, and are contained in the volume of the Census. These figures are far from accurate. Since the introduction of registration of deaths in 1864 the statistics have improved in quality, but the information applies only to Ireland as a whole. The curves for Ireland resemble the type found in the western and northern parts of Scotland.

Dr. John Brownlee has considered the effect of such factors as environment, occupation, climate and the elimination of susceptible persons by natural selection in producing the features of the different curves. He has arrived at the conclusion that none of them affords any adequate explanation of the main phenomena observed. The cause of the differences is taken to be that what has hitherto been called *Phthisis pulmonalis* is not one disease, but a mixture of three allied diseases: (1) a type of phthisis which chiefly affects the young adult, the commonest age of death lying between 20 and 25 years, (2) a type of phthisis affecting persons of middle age, the commonest age of death of males lying between 45 and 51 years, and (3) a type of phthisis chiefly attacking persons in old age, the commonest age of death lying between 55 and 65 years.

A study has been made of the influence of occupation in producing phthisis to throw light on the problem of the epidemiology of phthisis. The author notes that the interpretation of these figures is not less dangerous than the interpretation of the Holy Scriptures, unless the greatest care is exercised in drawing deductions. Three groups of industries have received special attention. The first group is that in which the employees are exposed to the dust of silica. The mortality curves of phthisis for cutlers, file-cutters, bricklayers, masons and stonemasons show that the age distribution of the death rate does not change from that of the curve for all males, though the excess of phthisis is very marked. Phthisis is relatively most common between the ages of 44 and 55 among silica workers and the population in general. The second group of employees is of those who work in mines. The amount of phthisis among miners for lead, iron and coal reaches its maximum between the ages of 55 and 65 years. With coalminers phthisis is comparatively rare, and the mortality approaches the level of the mortality among males in general only at 65 years. Among ironstone miners there is about twice the mortality of the coalminers at this age and among leadminers about four times. The mortality curve from phthisis among tinminers is of different shape. In its earlier part it corresponds closely with the curve for the death rate of phthisis among workers in silica. But it does not fall in the same way as the silica curve, but remains almost horizontal between 50 and 70 years.

Methods of analysis have been employed to ascertain the relative distribution of different types of disease in each district in England and, after the amount of each of the three types present in any district has been determined to recombine the figures and to reconstruct a correct representation of the data for each age period originally analysed. Observation of the curves of mortality distribution suggested that the rates found in Shetland and in London might represent the "young adult" and "middle age" types. Each elementary type of age distribution must exhibit the properties of a mortality curve with a single maximum at some definite age and with a curve of ascent and curve of decline which are continuous. With the values obtained from these curves the death rates at different ages have been calculated for nineteen counties. As no county exists in which any series of age period death rates approaches those which might be expected from the presence of "old age" elementary type of phthisis, the mortality curve of coalminers from phthisis has been utilized. This curve shows a maximum at 60 years of age. When the presence of three elementary types is assumed, the calculated rates for each age period in each county show good agreement with the actual curves. In this mathematical study the figures were calculated at one decade and fitted to another decade to test the agreement. The mortality from phthisis in Cornwall receives special attention. The mathematical analysis fails to yield any agreement. The chief feature is the enormous death rate at high ages from phthisis. This is no doubt due to tin mining. If, however, the curves of death rates from phthisis in mining and non-mining districts are compared, it will be found that they show a general resemblance, although the death rates are higher in the mining districts. The "young adult" type exists in both areas, but the presence of the "old age" form is as characteristic of the non-mining areas as of the mining districts.

In dealing with the mortality curves for females difficulties have been experienced, as there have been no curves which show clearly the effects of a single type. By making assumption as to the ages at which the maximum death rates occur, the rates have been calculated with sufficient success to show that each set of rates can be assumed to be due to the combination of the elementary types. The "old age" type is only present among women to one-third of its prevalence among men.

The second part of the investigation deals with the Bills of Mortality of London from 1593 to 1845. Since the year 1629 the causes of death have been classified. From 1629, except for a break from 1637 to 1646, a continuous series of Bills are available. The diagnosis of the causes of death were at first not those of physicians. While doubt has been expressed from time to time of the utility of these figures, Dr. Brownlee makes a series of tests, which convince him of the general reliability of the data. The most useful curve is that of the proportion of the deaths from phthisis compared with deaths from all causes. This curve shows that there was more phthisis in 1800 than before and after. The proportionate mortality appears nearly three times as high in 1800 as in 1900. The curve begins to rise in 1730, and remains near its maximum from 1770 to 1810, when it falls rapidly to 1831, and has fallen little since that date.

In concluding, Dr. Brownlee refers to the important consequences in regard to vaccine treatment which follow the admission of the existence of different strains of tubercle bacilli. He states that there is no statistical evidence that the "young adult" type is affected by environment, and that it resembles scarlatina in its distribution throughout cities. He notices that, while the "young adult" epidemic reached its maximum about 60 years ago, the "middle age" epidemic had passed its maximum over 100 years ago.

THE McGARVIE SMITH VACCINE.

(Continued from page 402.)

The Honourable W. C. Grahame, Minister for Agriculture, desired to correct the impression which Mr. Mutch had left on the House. He maintained that if Dr. Wall had not gone as the agent of the Government he could have got nothing from Mr. McGarvie Smith. Whatever his position was at the present time, it was due to the fact that he went armed with a letter from the Premier and as the trusted servant of the country to get that which the Government had been negotiating for with Mr. Smith for four years. Mr. Mutch intervened with the remark that he had said that Dr. Wall and Mr. Waddell had gone to Mr. McGarvie Smith before they acted as agents of the Government. In reply, Mr. Grahame stated that Dr. Wall had seen him four weeks before "they started their experiment" and discussed the whole matter with him. He begged that the Government should appoint him to get the secret from Mr. McGarvie Smith. Continuing, the Minister said that, throughout the two years during which he was interviewing Mr. McGarvie Smith, it was never doubted that Mr. Smith would be prepared to hand over the formula to the experts of the Agricultural Department. Mr. McGarvie Smith agreed to hand it over to Mr. Darnell-Smith, the expert at the Agricultural Department, and he even went so far as to instruct Mr. Darnell-Smith in the process of manufacture of the vaccine. Mr. McGarvie Smith had never imparted to Mr. Darnell-Smith how to preserve the vaccine. He told him everything with the exception of that. Dr. Wall wanted to be the one to get what the pastoralists were urging should be got. He, the speaker, agreed that he should have a letter, and the Premier gave him a letter. Dr. Wall then saw Mr. McGarvie Smith as the trusted agent of the Government. Dr. Wall assured him that he did not want a penny for his services, but that he wanted to give them free to the country. "He said to me: 'All I do I want to do for nothing. I will

not take anything.' Whatever services Dr. Wall has rendered were, under the arrangements made with me, to be rendered for nothing; and whatever he is getting from the institute to-day he is getting under false pretences."

Mr. J. Storey, member for Balmain, asked the Minister for Agriculture to state definitely whether Dr. Wall was a fraud or not. The Government ought not, if it had any self-respect, to allow the matter to remain where it was.

Dr. Richard Arthur, member for Middle Harbour, did not care who knew the so-called secret, what was done with it, or how much money had been made out of it, as long as the taxpayer was not called upon to foot the bill. He estimated that the institute would cost about £6,000 a year. He anticipated that in two years the £10,000 lent to the Government would disappear. He was amazed at the simplicity of the Government in being deluded into believing that there was any secret in this "serum" (*sic*). The formula was simply a formula of one of the spore vaccines manufactured for anthrax. There was a spore vaccine known in Russia long before Mr. McGarvie Smith took the matter up. The probability was that he worked on that spore vaccine. It was identical with Gunn's formula. Mr. McGarvie Smith communicated his process to young Mr. Stewart, and announced the fact in the newspapers at the time. Mr. Stewart had told him that it was the same as was prepared by Dr. Eichorn, of the United States Department of Agriculture, from a formula, which was given in a pamphlet in his possession.

The debate then ended.

On October 30, 1918, the Honourable F. E. Wall, M.D., made a personal explanation in the Legislative Council. He maintained that the statements of Mr. Oakes and the Minister for Agriculture were based on an incomplete knowledge of the facts. Certain important documents were absent from the file laid on the table of the House. He challenged Mr. Oakes to name, outside the privilege of Parliament, the persons who were prepared to unload the vaccine in other parts of the world. He also challenged the Minister for Agriculture to repeat his statement: "What Dr. Wall got from the institute in fees he wished to say he got through false pretences" in such a way as would give him an opportunity of vindicating himself. (Dr. Wall probably quoted from a newspaper report.) He stated that the insinuations and allegations were utterly false, malicious and groundless.

On October 31, 1918, on the motion for the adjournment the Honourable F. E. Wall, M.D., dealt more fully with the statement in the lower house. Referring to the assertion of the Minister for Agriculture that if Dr. Wall had not been the agent of the Government he would have got nothing from Mr. McGarvie Smith, he read a minute by the Secretary of the Premier's Department, dated April 22, 1918.

> Dr. Wall telephoned to me this afternoon, stating that Mr. McGarvie Smith had communicated the secret of the process to him, and he was anxious to commence work upon it at once. Mr. Grahame had promised to make available some sheep at the Field of Mars for the purpose of the experiment, and it was now desired that authority be given to him to request Dr. Tidswell, formerly bacteriologist in the Department of Public Health, to work in collaboration with him. I spoke to Mr. Grahame on the matter after Cabinet to-day, and received his endorsement of the suggestion. Dr. Wall will get in touch with Dr. Tidswell verbally in the matter.

There was a covering minute, as follows:—

> Herewith is a copy of a letter which has been addressed this day to Mr. McGarvie Smith by the Premier. It has been dispatched in response to the urgent request by Mr. Waddell and Dr. Wall.

The letter referred to contained an expression of gratification that the Premier and his colleagues had learned from Mr. Waddell that Mr. McGarvie Smith had decided to communicate the secret of his process of preparing vaccine for the inoculation of sheep and cattle infected with anthrax. Dr. Wall asserted that he had never received any letter from any Government Department authorizing him to go to Mr. McGarvie Smith and act on behalf of the Government. As far as he could ascertain, Mr. McGarvie Smith had already communicated his process to him before any letter had been received from the Government. Mr. Waddell and he had notified the Acting-Premier on April 10, 1918, that Mr. McGarvie Smith was prepared to disclose his secret for the benefit of the State. Mr. Waddell and he had been to Mr. McGarvie Smith, but not at the request of the Minister for Agriculture. He could not recollect, neither could any of the relatives or the nurse recollect, that Mr. Grahame had visited Mr. McGarvie Smith after he and Mr. Waddell had opened up negotiations. He referred to the failure attending Mr. Grahame's previous attempts to secure the secret for the Government.

Turning to the statement by Mr. Grahame to the effect that whatever Dr. Wall was getting from the institute he was getting under false pretences (Dr. Wall again quoted from the newspaper reports and not from *Hansard*), he contended that this was a very serious charge, and he refuted it absolutely. He left it to the Honourable the Solicitor-General to reply. He had informed the Minister for Agriculture that he had been engaged in the business for some time, and that he did not propose to charge for these services. He would, however, expect to be paid for services in connexion with the tests in collaboration with Dr. Tidswell. The fees were approved of by the Premier before the work was undertaken.

In regard to the statement that there were people prepared to unload the vaccine in other parts of the world, he referred to the method of disposal of the vaccine, as set out in the document dated May 1, 1918. This document was submitted by Dr. Tidswell and him to the Solicitor-General, and he, the speaker, asked whether the conditions set out in the document would clash with the intentions of the Government. The Solicitor-General raised no objection, and the testing was proceeded with. After the tests had been completed, he addressed a letter to the Premier, under the date of July 8, 1918. In this letter were set out the conditions under which the formula was handed over to the McGarvie Smith Institute, the nature of the trust and the circumstances in which the trustees proposed to establish the institute. It contained a reference to the fact that Mr. McGarvie Smith had advanced the sum of £10,000 as a loan to launch the institute. The whole letter was read. The deed of gift empowered Dr. Tidswell and him to manufacture the vaccine. He had waived any right he might have had under that deed, both to the Premier and to the trustees. He also referred to the fact that the deed did not include the rights outside New South Wales and the laboratory equipment. This was dealt with in a separate deed of gift, and was transferred by him (Dr. Wall) in a subsequent deed. He read the terms of this document. Dr. Wall also read a letter from Dr. Tidswell, resenting the imputations that he and Dr. Wall had exploited their knowledge of the process to the detriment of the State or of any other interest concerned. They had merely asked for payment for services rendered, as any other business men would have done. They expressed their readiness to modify the arrangements under which they were acting for the trustees, even to a complete annulment. This letter was addressed to the trustees on October 3, 1918. In conclusion, Dr. Wall suggested that Mr. Grahame should withdraw what he had said, or surrender the right of privilege, so as to give him the opportunity of taking other action.

The Honourable J. Garland, K.C., Solicitor-General, regretted that persons with little knowledge had aired their views on the matter. He came into the matter at a time when it was clear that unless steps were taken immediately to secure the results of Mr. Smith's discovery, they might be lost, not only to the State, but to the world. Mr. McGarvie Smith was at that time in an extremely precarious state of health. He conveyed this information to the Premier, and pointed out to him that it was the duty of the Government to satisfy itself whether the alleged discovery was of scientific value. He was then instructed by the Premier to engage Dr. Tidswell and Dr. Wall on certain terms, which had been made public. He had been informed, and this was the only thing that had induced him to interfere in the matter, that Mr. McGarvie Smith had made it a *sine qua non* of his consenting to this discovery being handed over to the State that it should not be subject to the direction of any department of State, because he had the profoundest distrust of governmental servants. He further related his interviews with Dr. Wall concerning the transferance of the gift of the laboratory appliances and of the rights outside New South Wales to the institute. Dr. Wall showed himself one who was anxious to do what he could in the interests of the State. As far as his engagement in connexion with Dr. Tidswell was concerned, that was a professional engagement. Dr. Wall was, as far as he knew, the only person at that

time to whom Mr. McGarvie Smith had confided his process. It was essential that the process should be explained to Dr. Tidswell. He recollected that Dr. Wall had said something about not wishing to be paid. When they discussed the experiments to be conducted at Moss Vale, where Dr. Tidswell had a laboratory, Dr. Tidswell mentioned the fee he expected to be paid, and Dr. Wall said he expected to be paid a similar fee. He assented to that.

The Honourable J. B. Nash, M.D., discussed the nature of the deeds of gift, and the question was then put and resolved in the affirmative.

THE TASMANIAN HOSPITALS BILL.

On October 31, 1918, the Honorary Minister moved the adjournment of the Legislative Council for the purpose of calling attention to a letter which was published in the *Mercury* of that date over the signature of E. Brettingham Moore, Secretary of the Tasmanian Branch of the British Medical Association. The letter was in the following terms:

> May I be allowed to outline the origin of the letter read by the Attorney-General in the Legislative Council last night? About three weeks ago Dr. Armit, the Editor of *The Medical Journal of Australia* visited Hobart, instructed by the Federal Committee of the British Medical Association, for the purpose of acting as an intermediary in the hospital dispute, and, if possible, arranging for a settlement. The letter referred to was written at his dictation, and was only agreed to by us on his express statement that the condition asked for prior to a conference was the suggestion of the Honorary Minister with whom he had just been conferring.

The Honorary Minister gave, in the course of a long speech, what purports to be a *verbatim* report of conversations which took place three weeks before. The Honorary Minister apparently has a memory even more phenomenal than that of Dr. Johnson. Without laying any claim to a recollection of the actual words used in the course of these conversations, the Editor of this journal is prepared to accept as substantially correct the major part of the recorded conversations. There are, however, some quite incorrect sentences, and by the omission of other portions of the conversations the significance is not inconsiderably altered.

The Honorary Minister started by claiming that the statement contained in Dr. Brettingham Moore's letter was "absolutely untrue." Politicians have an uncouth way of meeting an argument. In the course of his speech he demonstrated quite conclusively that the statement contained in the letter was true. He proceeded in stating that he felt that it was undesirable for him to say anything which would widen the breach between the British Medical Association and the Government, but he felt that he ought not to be asked to become the scapegoat for the British Medical Association. The word "scapegoat" means a person who suffers for the faults of others. The Honorary Secretary of the Tasmanian Branch of the British Medical Association, with the approval of his Council, directed a letter to the Premier, offering to attend a round-table conference with members of the Government, with the object of endeavouring to overcome the difficulties between the medical profession and the Government, and attached to that proposal a condition, which was quite essential. Five medical practitioners had been guilty of an offence which rendered them ineligible for membership of the British Medical Association. The condition precedent to the holding of a conference indicated that the Tasmanian Branch of the British Medical Association was desirous of making peace with the Government, in order that the medical profession might resume its activities in the public hospitals for the benefit of the sick poor. As there is no "fault" in making a frank and honourable announcement that a conference would be useless unless the five practitioners were removed from the hospitals, it is difficult to understand why the Honorary Minister should speak about "scapegoats."

It is unnecessary to follow the Minister through a long recital of what transpired up to the time when the Editor of *The Medical Journal of Australia* had conversations with the Premier and with the Honorary Minister in Hobart. The Minister, in his speech, after relating how he came to take part in these conversations, stated that he made the suggestion to the Editor in private conversation that the Tasmanian Branch should not stand on its dignity, but should write to the Premier to propose the holding of a conference. The Minister then said that he asked the Editor what position the Tasmanian Branch would take up as far as Victor Richard Rattan was concerned. He proceeded by explaining that he wanted to know what attitude the Branch would take up if a conference were held and the matters in dispute adjusted. The reply was that Rattan would have to go out of the hospital. The Minister then referred to the agreement which the Government had with Rattan and the fact that it was proposed to set up a Royal Commission to enquire into certain matters. He assumed that two months might elapse before the result of the Royal Commission would be furnished. What would happen during that time? The reply was that the result of the negotiations would have to remain in abeyance. The Minister then put the question: "Suppose the Royal Commission exonerates Dr. Rattan, what about the remaining period?" The Editor is stated to have replied: "It is quite clear that, so far as the British Medical Association is concerned, no settlement can be arrived at so long as Dr. Rattan remains in the Hospital." The Minister then referred to the position of the other medical men at the hospitals. The Honorary Minister stated that he did not know who they were at that time. The Editor is reported to have said that these men would have to go out of the hospitals and remain out. The Minister stated that, speaking for himself, he thought that this demand would constitute a serious difficulty. The reply was that, whether there was a difficulty or not, it would have to be done. The Minister then asked what would be the use of having the conference if behind it all there was an insuperable difficulty. The Editor asked him to make a suggestion. The Minister said: "What I can suggest is that you write to the Premier, be candid, and put the position before him." In reply to the question whether he had any idea what the result would be, the Honorary Minister said: "Not at all, but so far as the removal of these doctors is concerned, that is an insuperable difficulty." He then repeated the advice for the Editor to place his cards on the table. Later he learned that the letter had been written to the Premier. He saw it after the Premier had received it. Continuing, the Minister related how the Editor had come to him again and told him that the Premier had slammed the door in their faces. The Minister did not know what else he could have expected. After further conversation the Editor asked whether he could recommend anything further, and the advice given was that the Editor should again see the Premier and see whether anything could be done. He told the House that if the condition in the letter had been put in at his suggestion, the Editor would have displayed indignation and demanded that he should do something. He also suggested that the Editor would have revealed indignation at the Premier's office. In conclusion, the Minister stated that he knew that the statement of fact was true, and asked what the British Medical Association was complaining about. The only answer was that they had given away too much to the public.

There is no complaint concerning the letter, save that the Premier sought to influence public opinion by suggesting that the condition asked for was extraordinary, and, by implication, irrational. The Honorary Minister could not have regarded the condition as a prohibitive one. During the conversations between the Premier, the Honorary Minister and the Editor of this journal, the last mentioned expressed the opinion repeatedly that the fact that Victor Richard Rattan held the position of Surgeon Superintendent at the Hobart Hospital under contract constituted an insuperable difficulty in the way of a settlement. The position of the other medical officers was not then referred to. Later, in private conversation with the Honorary Minister, the question of a conference was again discussed, and the Minister enquired what would be the attitude of the profession if the Royal Commission exonerated Rattan. This question led to a series of cross-questions, based on suppositious circumstances under which Rattan might have obtained a document purporting to be a diploma of the Harvey College of Chicago, dated 1907. The replies given on both sides were limited to what might be regarded as a valid diploma and what would be an invalid diploma. No reply was given to the direct question concerning the attitude of the profession in the event of the exoneration of Rattan by the Royal Commission, since the position hinged more on the acceptance of a position by him than on the validity of his diploma. Moreover, the members

of the Tasmanian Branch of the British Medical Association looked for an impartial enquiry into the charges which they had formulated against Victor Richard Rattan. On the further question as to whether the medical profession would be prepared to work with the other medical officers of the hospitals, some very definite statements were made. The Editor expressed the opinion that as long as these practitioners maintained their attitude of defiance of the Association to which three of them had belonged, the Tasmanian Branch would refuse to extend professional recognition. The Honorary Minister asked whether this would still obtain if a satisfactory settlement were arrived at, and, as a result of a fresh election of medical officers or of members of the Board of Management, one or other of these practitioners were again elected. The Editor explained that the members of the Tasmanian Branch would accept the position like men. There was a rule of the Association according to which recognition has to be extended to a practitioner ineligible for membership in the performance of duties in a public office. The Editor held the opinion that the presence of any of these practitioners in any office connected with the hospitals would be a source of irritation to the other practitioners of Hobart and Launceston, and might possibly be detrimental to the smooth working of the hospitals. The Honorary Minister stated that it was obviously no good pretending that a satisfactory adjustment of the difficulties could be arrived at if the Tasmanian Branch could not recognize these practitioners. He referred to similar objections having been raised in the legal profession. He therefore suggested, as he admitted in his speech, that in the letter which the Honorary Secretary of the Branch should write to the Premier, a frank statement should be made that they would be prepared to confer with the Government on the condition that these five practitioners were removed from the hospitals and also excluded from them. It is inconceivable that this advice could have been given if the Minister regarded this condition as a prohibitive one. The Editor was satisfied that the advice was given in good faith, and consequently did not regard the reply of the Premier as embodying the opinion of the Honorary Minister. When a further conversation took place after the reply had been received, the Honorary Minister did not say to the Editor that it was what he should have expected. The suggestion made in the Honorary Minister's speech that the Editor would have expressed great indignation is mere political sand thrown in the air. When a man honestly desires to effect a reconciliation between two contending parties, he keeps himself well in control, and does not lose his temper. He does not adopt the language frequently used across the floor of the House in private conversation, because this would inevitably lead to a permanent breaking-off of all intermediary negotiations.

While the reply of the Premier and the speech of the Honorary Minister have undoubtedly widened the breach between the Government and the medical profession in Tasmania, we are by no means hopeless. The debate on the *Hospitals Bill* is proceeding, and it is possible that amendments may be introduced which may render the measure more acceptable. Any further attempt to secure the co-operation of the medical profession for the public hospitals must come from the Government.

Stanley George Whitfeld, M.B., Ch.M., 1918 (Univ. Sydney), of "Kelburn Hall," Elizabeth Bay Road, Elizabeth Bay, Sydney, has been nominated for membership of the New South Wales Branch of the British Medical Association.

Public Health.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending November 3, 1918:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total Cs.	Dths.
Enteric Fever	0	0	1	0	1	0
Scarlatina	42	0	38	0	80	0
Diphtheria	79	1	31	0	110	1
Pulmonary Tuberculosis	15	11	7	4	22	15
C'bro-Spinal Meningitis	0	—	1	—	1	—

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending November 2, 1918:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	3	0	1	0	5	0	9	0
Scarlatina	8	0	0	0	7	0	15	0
Diphtheria	27	0	3	0	42	0	72	0
*Pul. Tuberculosis	8	9	0	0	0	0	8	9

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending November 2, 1918:—

Diseases.	No. of Cases.
Enteric Fever	5
Scarlatina	3
Diphtheria	32
Pulmonary Tuberculosis	1
Erysipelas	1

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the week ending October 26, 1918:—

	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	0	0	2	0	2	0
Scarlatina	0	0	25	0	25	0
Diphtheria	2	1	34	0	36	1
Pulmonary Tuberculosis	0	2	12	4	12	6
Erysipelas	0	0	1	0	1	0
Morbilli	0	0	4	0	4	0
Pertussis	3	0	24	0	27	0
Puerperal Fever	0	0	0	1	0	1
Influenza	0	0	1	0	1	0

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the week ending October 26, 1918:—

Diseases.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Enteric Fever	0	0	1	1
Diphtheria	1	1	8	10
Pulmonary Tuberculosis	1	0	3	4
C'bro-Spinal Meningitis	0	0	1	1

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending October 19, 1918:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	1	0	1
Scarlatina	6	6	12
Diphtheria	4	9	13
Pulmonary Tuberculosis	5	2	7
*Cerebro-Spinal Meningitis	4	0	4
Erysipelas	1	1	2
Malaria	1	0	1

The Federal Quarantine authorities are exercising extreme vigilance in the endeavour to prevent the spread into Australia of that form of illness which is popularly described as Spanish influenza. The disease is obviously produced by a bacterium or a symbiosis of bacteria possessing distinct pathogenic characters and an extraordinarily high virulence.

The Medical Officer in charge of the Quarantine Station at North Head, Sydney, has had an opportunity of observing a large number of cases among the passengers of several oversea vessels, including the *Atua*, and recognizes that this illness is readily differentiated from the influenza prevalent within the Commonwealth. The infectivity is very high, as can be demonstrated by the large proportion of the passengers who are infected. It is satisfactory to note that the measures adopted at all the Quarantine Stations have proved efficacious up to the present. They include strict isolation of all persons suffering from the disease, a rigid quarantine of apparently non-infected passengers and a systematic application of spraying with a 2% zinc sulphate solution in an inhalation chamber. This method was first introduced in connexion with cerebro-spinal meningitis, and has been strongly advocated by Sir William Leishman, R.A.M.C and many other competent observers after careful bacteriological examination of the faucial mucus. The method was adopted empirically as a prophylactic measure against influenza, and its scientific justification is being demonstrated experimentally at the Commonwealth Serum Institute. It is stated that prophylactic vaccination has reduced the incidence of the complicating pneumonia, which is responsible for the heavy mortality.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on October 15, 1918, at University Chambers, Phillip Street, Sydney.

Mr. James Murdoch was appointed to the Chair of Oriental Studies.

A letter was received from Miss Sydney Jones, thanking the Senate for the expression of sympathy in regard to the loss of Sir Phillip Sydney Jones.

Mr. and Mrs. John Sulman wrote, offering to present a sum of £250 to found a prize for an essay or thesis on "Aeronautics," in memory of their late son, Geoffrey Sulman. It was resolved to accept the offer with thanks and to forward a letter of sympathy in their loss.

The scheme of Empire study adopted by the Imperial Studies Committee of the Imperial Colonial Institute to the Universities of the United Kingdom, forwarded from the Premier's Department, was referred to the Professorial Board.

Acting-Professor Cotton reported a gift from Mrs. Russell Barton of valuable geological specimens. It was resolved to acknowledge the gift with thanks.

The degree of Ch.M. was conferred upon Lance Hayward Stanton-Cook, M.B., *in absentia*.

The annual report of the Sydney University Union was received, and the following representatives of the Senate on the Board of Directors were appointed: Professors Peden and Johnston.

The following representatives were appointed on the Board of Directors of the Sydney University Women's Union: Mrs. Wilson and Dr. Constance E. D'Arcy.

The following appointments were made: On the recommendation of the Dean of the Faculty of Law—Readers in Law, Messrs. P. R. Watts, C. G. Davidson and D. S. Edwards. (2) On the recommendation of the Joint Committee for Tutorial Classes—As Probationary Tutors in English Literature, Mr. J. J. Hudson, B.A.; Miss Persia Campbell, B.A. (3) On the recommendation of Professor Lawson—Lecturer and Demonstrator in Botany, Mr. Patrick Brough, M.A., B.Sc.

On the recommendation of the Faculty of Science and the Professorial Board, it was resolved that Mr. E. G. Boyd be permitted to present himself for the third year examination in the Department of Mining and Metallurgy in March, 1919, under the provisions of By-law Chapter XII. (*a*).

On the recommendation of the Professorial Board, it was resolved (1) that By-law Chapter XVI., Section 3 (*b*) and Chapter XVI., Section 15 (*b*) be suspended in the case of students who have enlisted and are proceeding abroad on active military or naval service.

The report of the committee appointed to draw up regulations for the degree in Architecture was adopted on its recommendation and referred to the By-laws Committee.

It is with great regret that we have to announce the death of Dr. William Lennox Cleland, for many years Superintendent of the Mental Hospital, Parkside, South Australia.

Correspondence.

THE HOSPITAL OF THE FUTURE IN AUSTRALIA.

Sir,—In the report of the interesting discussion on Dr. Arthur's paper I notice that my friend, Dr. Worrall, stated that: "At the Eastern Military Hospital, Cambridge, the exposure led to considerable suffering and discomfort to the patients." This caused me some surprise. In November of last year I was called upon to see all the Australian soldiers in the said hospital, about a hundred and fifty. Being interested in the question of open-air treatment, I made particular enquiries, and not a single complaint did I receive; on the contrary, they expressed themselves as well pleased with the open-air wards. Like Dr. Arthur, I value the opinion of a competent nurse, so I elicited information from that source, and that was that the patients did well and were comfortable, but that the lot of the nurses was not so happy. During my residence in England I had the pleasure of visiting the Hospital for Tuberculous Diseases of Children in Cheshire with Sir Robt. Jones, who spoke most enthusiastically of the value of the large open-air ward. I never saw children in hospital look so well as did the children there. At my hospital at Harefield it was the custom of my officers to treat their worst surgical cases in a big verandah, which was only too small, and patients so treated were none too pleased to have to return to their wards to make room for more acute cases. From my experience in England I came back to Australia with the decided opinion that it would be a wicked waste of money if the hospital of the future was to be the same as the hospital of the past.

Yours, etc.,

W. T. HAYWARD.

Adelaide, November 4, 1918.

Sir,—I was interested to read Dr. Arthur's remarks on open-air treatment and the discussion which followed his paper.

During the past year we have had at this hospital forty beds permanently on our northern balconies, which are provided with strong canvas blinds for use in inclement weather.

We began the open-air treatment as an experiment, tried it in all sorts of cases, and have been surprised and delighted at the results. We found that our gastro-enteritis babies did very much better on the balconies than in the enclosed wards, and the difference is equally striking in cases of septic wounds. We found that in secondary anæmias the blood-count improved more quickly in the open air. We do not treat our pneumonia patients in the open air during the acute stage, only because of the difficulty of keeping balcony patients under constant observation; and this applies, in the absence of a special nurse, to any other patient who is dangerously ill. We prefer to treat acute nephritis in the enclosed ward. Most other cases are treated on the balcony for choice.

We have not been inconvenienced by the dust (although this city is generally considered to be very dirty), possibly because all our balconies are well above street level and face a small park.

The patients themselves generally welcome the idea of having a balcony bed, and almost invariably say that they feel better after a few days there. They become more cheerful and sleep better, and their appetite increases.

I am strongly in favour of the hospital consisting mainly of open-air wards, with a few enclosed wards attached for the treatment of the minority of cases.

Yours, etc.,

NORMAN ZIONS, M.B., Ch.M.,
Medical Superintendent.

Newcastle Hospital, New South Wales,
November 7, 1918.

Births, Marriages and Deaths.

The charge for inserting announcements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps, with the notice, to arrive not later than Tuesday morning in order to ensure insertion in the current issue.

DEATH.

STEWART.—On November 8, 1918, Catherine, dearly beloved wife of Dr. Andrew Stewart, of Wickham Terrace and Sherwood, Brisbane.

Medical Appointments.

Dr. W. B. Nisbet (B.M.A.) has been appointed Acting-Government Medical Officer at Townsville, an Acting Health Officer for the purposes of *The Health Act, 1900 to 1917*, and Acting Medical Officer to the State Children Department, Townsville, Queensland, during the absence of Dr. E. Humphry (B.M.A.).

The appointment of Dr. William Christian Daish (B.M.A.) as Government Medical Officer at Nyngan, New South Wales, is announced.

Dr. Edward Angas Johnson has been appointed Inspector of Schools of Anatomy and Superintendent of the School of Anatomy established in connexion with the University of Adelaide, South Australia.

During the absence of the Commissioner of Public Health, Queensland, Dr. J. Booth-Clarkson has been appointed Deputy Commissioner of Public Health.

Dr. David Tyrrell Keyes (B.M.A.) has been appointed Public Vaccinator for the Midland District, and Dr. David Bickart (B.M.A.) for the North-Western District, Victoria.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xv.

In future, no advertisements inviting applications from medical practitioners for positions in public institutions will be accepted unless the appointment is limited to medical practitioners who are ineligible for military service, or who have returned from military service. The term "ineligible for military service" is used to signify practitioners who are above military age, those who have offered their services and have not been accepted by the military authorities, or those who, for valid reasons, are incapable of applying for a commission in the Australian Army Medical Corps.

Red Cross Sanatorium, Wentworth Falls, N.S.W., Assistant Medical Superintendent.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Australian Natives' Association. Brisbane United Friendly Society Institute. Rockhampton Associated Friendly Societies. Cloncurry Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments in South Australia. Contract Practice, Appointments at Renmark.
WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
TASMANIA. (Hon. Sec., Macquarie Street, Hobart.)	Medical Officers in all State-aided Hospitals in Tasmania.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

Diary for the Month.

Nov. 19.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Nov. 20.—W. Aust. Branch, B.M.A.
Nov. 22.—Q. Branch, B.M.A., Council.
Nov. 26.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Nov. 26.—Vic. Branch, B.M.A., Ballot Paper for Election of Office-bearers issued.
Nov. 27.—Vic. Branch, B.M.A., Council.
Nov. 28.—S. Aust. Branch, B.M.A.
Nov. 29.—N.S.W. Branch, B.M.A.
Dec. 3.—N.S.W. Branch, B.M.A., Ethics Committee.
Dec. 3.—Vic. Branch, B.M.A., Ballot Papers for Election of Office-bearers Returned.
Dec. 4.—Vic Branch, B.M.A., Annual; Election of Office-bearers.
Dec. 6.—Q. Branch, B.M.A.
Dec. 10.—Tas. Branch, B.M.A., Council and Branch.
Dec. 10.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Dec. 11.—South Sydney Med. Assoc. (N.S.W.).
Dec. 12.—Vic. Branch, B.M.A., Council.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.